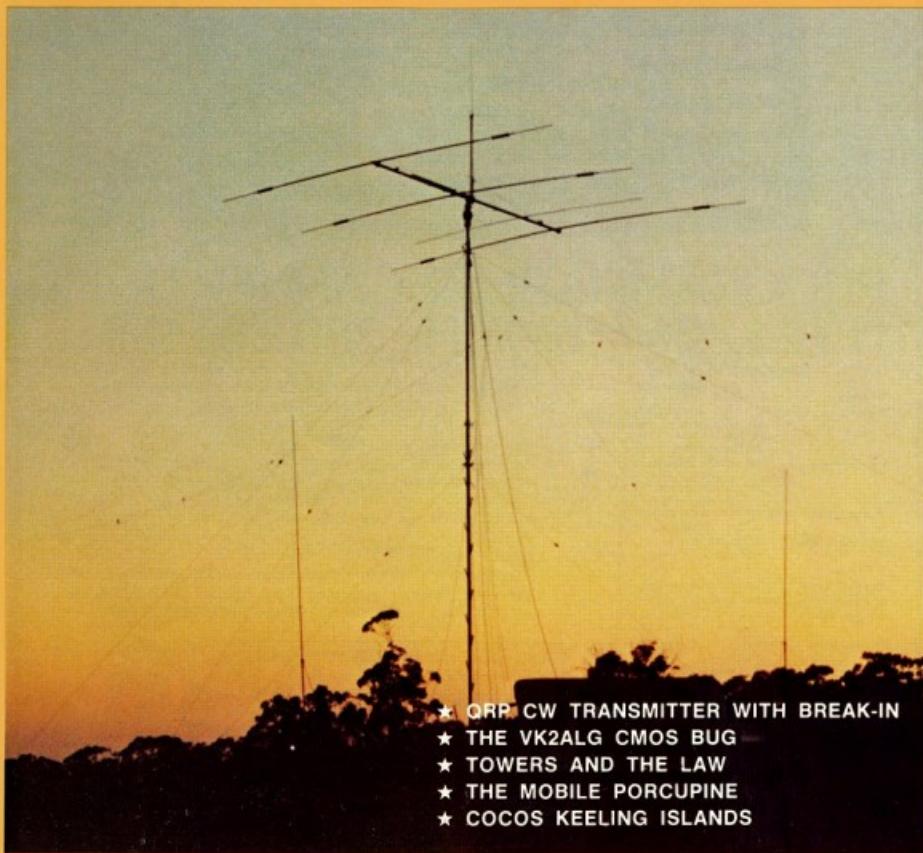


# Amateur Radio

Vol. 50, No. 2 FEBRUARY 1982  
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JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA



- ★ QRP CW TRANSMITTER WITH BREAK-IN
- ★ THE VK2ALG CMOS BUG
- ★ TOWERS AND THE LAW
- ★ THE MOBILE PORCUPINE
- ★ COCOS KEELING ISLANDS

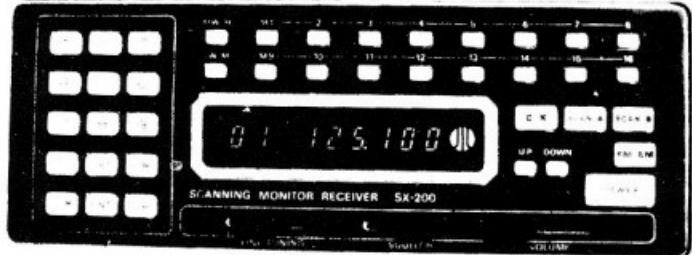
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b) 380-514 MHz 2.0/V S/N 12 dB
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Tel. (03) 528 5962

EDITOR: BRUCE BATHOLIS\* VK3UV

PRODUCTION MANAGER: BILL BAILY

TECHNICAL EDITORS:

BILL RICE\* VK3ABP  
EVAN JARMAN\* VK3JANI  
RON COOK\* VK3AFW  
GIL SONES\* VK3AUI

CONTRIBUTING EDITORS:

BOB ARNOLD VK3ZBB  
G. NICK NICHOLS VK6XJ  
ROY HARTKOPF\* VK3AOH  
RON FISHER\* VK3OM  
ERIC JAMIESON VK5LP  
LENN PONTER\* VK3EPE  
BILL VERELL VK5WV  
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REG DWYER VK1BR  
ROBIN HARWOOD VK7RH

DRAFTING:  
PETER KIMBER  
SUZY ZLOCH

BUSINESS MANAGER: PETER DODD VK3CIF

\*Member of Publications Committee

Enquiries and material to:  
The Editor,  
PO Box 150, Toorak, Vic. 3142

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## Cover Photo



Silhouette of station antennae used by VK5CGR in the John Moyle Memorial Field Day. See page 33.

QSP... QSP... QSP...

The WIA Annual Convention will once again be held at the Brighton Savoy Motel, Melbourne, on 1st May, 1982.

This is the only time throughout the year that policy decisions affecting the Institute and your hobby can be made as a whole.

Decisions made at the convention are not taken lightly, and are made only for the overall improvement and conservation of the amateur service in the long term.

Each of the seven Divisions has its own elected Federal Councillor and observer(s). Your Division's Councillor is the ONLY person who may vote on issues presented at the convention.

If you have any item which you consider needs to be brought up at the convention, your Federal Councillor must be briefed first. This can only be done by agreement of your local Division at one of its meetings.

The Federal Councillor is representing the State Division as a whole, and not necessarily the individual. However, you as an individual member, are part of your State's Division and have direct recourse to your State Council at the monthly meetings.

By nature of the Company structure of the WIA, 30 days notice is required for agenda items which are to be discussed at the convention. Therefore, all agenda items must be finalised, and in the hands of the Executive Office for distribution to the other Divisions by the 1st April, 1982.

Failure to accede to this time limit will result in the agenda item not being included for discussion.

This is now mid-February and your Divisional Council has only a few weeks left to discuss NATIONAL issues.

The role of the Executive Council is simple — we are the "whipping boys" of the Divisions. We can introduce agenda items (within the specified time, of course), but cannot vote on any item.

The Executive puts into effect the policy decisions agreed upon by the seven Divisional Councillors.

The Federal President, however, does have a very important function. He controls and administers the convention, and also has the power of a casting vote in the event of a deadlock.

His casting vote may only be used to maintain the status-quo, or, if he thinks necessary, to agree upon an important item which will have specific benefits. It is usual that his casting vote will be used only to maintain the status of existing policy, except in the most unusual circumstances.

The real power of the Institute lies with those seven Divisional representatives, and a simple majority is all that is required for new policy decisions to be made effective.

You should act now to enable your State Council to fully investigate any items you wish discussed.

Much valuable time can be lost at conventions if the councillor is not fully informed of the details surrounding an agenda item. In these events, the vote is usually lost.

The convention will last for 3 days and nights. It is intensive and tiring for those involved, and requires the full concentration of your Councillor and observer(s).

Any Institute member is welcome to attend part or all of the business proceedings, and IF CIRCUMSTANCES AND TIME PERMIT, may even be allowed to speak up either for or against a particular item. Naturally only the State Councillor is permitted to vote, so if you desire to speak, please let your Councillor know well in advance so that the necessary arrangements may be made.

Time is now running short, PLEASE ACT NOW so that your State Division can fully prepare its Federal Councillor for the important job ahead.

Decisions made at the 1982 Federal Convention will affect all Australian radio amateurs, whether members of the Institute or not.

BRUCE R. BATHOLS VK3UV  
Editor, AR, and Federal Vice-President.

# DECISION TIME

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WIA ANNUAL CONVENTION —  
PRELIMINARY ADVICE

---

# WIANEWS

## 10 MHz BAND

Members may wish to refer to a summary of the conditions relating to this new band.

The release of this band, 10100 to 10150 kiloHertz, for the use of the amateur service in Australia on a secondary — repeat secondary — basis from 1st January 1982 was announced by the Department of Communications early in December and publicised through an insert into the December edition of Amateur Radio.

Users of this band are advised to note several restraints as follows—

- (a) Amateurs are a secondary service and must not cause harmful interference to users in the primary service, namely the fixed Service;
- (b) The DOC states the frequency 10141.5 kHz plus and minus 4 kHz should be avoided because this frequency is assigned in Australia to a large number of low-powered stations;
- (c) The DOC advises that this band has been allocated to the amateur service in New Zealand on a similar basis but in this case the frequency 10130 kHz plus and minus 5 kHz should be avoided because this is an important New Zealand assignment to the fixed Service;
- (d) In Australia this band is available only — repeat only — to full call licensees, i.e. AOCPL holders only;

(e) Through a gentleman's agreement this band in Australia is split into two segments — 10100 to 10115 kHz for CW only and 10115 to 10150 kHz for phone and CW;

(f) A possibility exists that this band may not be recognised internationally for the purposes of contests and awards;

(g) Information through IARU sources indicates that this band may be limited in Regions 1 and 2 countries and in many Region 3 countries to narrow-band emissions only such as CW and possibly RTTY;

(h) It is not yet known for certain which countries have authorised the use of this band for their amateurs apart from Australia, New Zealand and the United Kingdom.

Subsequent to the above being written for broadcasts, news has been received that PNG amateurs have also been allocated this band on a secondary basis for all the usual HF permitted modes from 1.1.1982.

## 7 MHz BAND

Arising from a misconception, a columnist in January AR wrote concerning a 40 metre band expansion. Again a broadcast item drew attention to this error and confirmed there was no change here in Australia to the existing allocations of 7000 to 7150 kHz. ■

# WIRELESS INSTITUTE OF AUSTRALIA

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President — Mr. W. R. Maxwell VK1MX

Secretary — Mr. C. T. Vilder VK1KV

Broadcasts — 3570 kHz and 2m Ch. 6 (or 7): 10.00Z.

**NSW:**

President — Mr. A. D. Tilley VK2BAD

Secretary — Ms. S. J. Brown VK2BSB

Broadcasts — 1100 and 1900 local time. Frequencies bracketed at 1100 ch. 6 (or 7): 10.00Z.

12.25Z. Nth relay, 1.825 — Sydney relay, 3.595 (7.145), 28.32, 52.12, 52.525, 144.12 MHz. Repeater Ch. 6650 Oberon (6700 Orange), 6750 Gosford (6800 Lismore), 6550 Wallangong, 7000 Sydney, 8525 Sydney.

**VIC.:**

President — Mr. P. R. Drury VK3JUN

Secretary — Mr. D. J. Clarke VK3DEB

Broadcasts — 1840, 3600, 7155 kHz — 53.032 AM, 144.2 USB and 2m Ch. 2 (9) repeater: 10.30 local time.

Gen. Mtg. — 2nd Wed., 20.00.

## QLD.:

President — Mr. D. Laurie VK4DT

Secretary — Mr. F. J. Saunders VK4AFJ.

Broadcasts — 1.825, 3.580, 7.120, 14.342, 21.175, 28.400. Rpt. Ch. 6700 and 7000 Sundays from 0900Z (Sat. 2300 UTC).

Re-broadcasts — Mondays 3.605 from 1930Z, Mondays 80 or 20m RTTY segment from 2002.

## SA:

President — Mr. J. B. Mitchell VK5JM

Secretary — Mr. W. M. Wardrop VK5AQM

Broadcasts — 1820, 3550, 7095, 14175 kHz; 21.195, 28.470 and 53.1 MHz, 2m (Ch. 8): 09.00

S.A.T.

Gen. Mtg. — 4th Tuesday, 19.30.

## WA:

President — Mr. B. Headland Thomas VK5OO

Secretary — Mr. F. Parsonsage VK5KPF

Broadcasts — 3560, 7075, 14100, 14175 kHz, 28.47, 53.1 MHz, 2 metres Ch. 2 Perth, Ch. 6 Wagin. Time 0130Z.

## TAS.:

President — Mr. I. F. Ling VK7KL

Secretary — Mr. P. Clark VK7PC

Broadcasts — 7130 (SSB) kHz with relays on 6 and 2m Ch. 2 (S), Ch. 6 (N), Ch. 3 (NW), 09.30 EST.

## NT:

President — Mr. T. A. Hines VK5NTA

Vice-Pres. — Barry Burns VK5BDI

Secretary — Robert Milliken VK5NRM

Broadcasts — Relay of VK5WI on 3.555 MHz and on 146.5 MHz at 2300Z. Slow Morse transmission by VK5HA on 3.555 MHz at 1000Z almost every day.

## Postal Information:

VK1 — P.O. Box 46, Canberra, 2600.

VK2 — 14 Aitchison St., Crows Nest, 2065 (Ph. (02) 43 5795 Mon., Tues. & Thurs. 9.45-13.45H).

P.O. Box 123, St. Leonards, NSW 2065.

VK3 — 412 Brunswick St., Fitzroy, 3065 (Ph. (03) 417 3353 Weekdays 10.00-15.00H).

VK4 — G.P.O. Box 638, Brisbane, 4001.

VK5 — G.P.O. Box 1234, Adelaide, 5001 — HQ at West Thebarton Rd., Thebarton.

VK6 — G.P.O. Box 10, W. Perth, 6005.

VK7 — P.O. Box 194, Launceston, 7200.

VK8 — (Incl. with VK5), Darwin AR Club, P.O. Box 37317, Winnellie, N.T., 0789.

Slow Morse transmissions — most week-day evenings about 09.30Z onwards around 3550 kHz.

## VK QSL BUREAUX

The following is the official list of VK QSL Bureaux, all are inwards and outwards unless otherwise stated.

VK1 — QSL Officer, G.P.O. Box 46, Canberra, A.C.T. 2600.

VK2 — QSL Bureau, P.O. Box 73, Teralba, 2284.

VK3 — Inwards QSL Bureau, Mrs. B. Gray VK3BYK, 1 Amery Street, Ashburton, Vic. 3147.

VK3 — Outwards QSL Bureau, C/o 412 Brunswick Street, Fitzroy, 3065.

VK4 — QSL Officer, G.P.O. Box 638, Brisbane, Qld., 4001

VK5 — QSL Bureau, Mr. Ray Dobson VK5DI, 16 Howden Road, Fulham, S.A. 5024.

VK6 — QSL Bureau, Mr. J. R. Turner VK5RU, G.P.O. Box 3719, Perth, W.A. 6001.

VK7 — QSL Bureau, G.P.O. Box 371D, Hobart, Tas. 7001.

VK8 — QSL Bureau, C/o VK5BA, P.O. Box 1418, Darwin, N.T. 0794.

VK9 — Federal QSL Bureau, Mr. N. R. Penfold VK5NE, 388 Huntriss Rd., Woodlands, W.A. 6018.



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DSE/A160/PAT

# **QRP CW Transmitter with Break-In – Part 3**

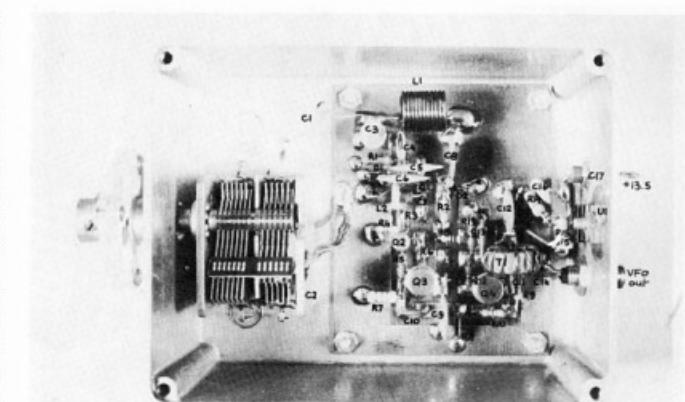
Drew Diamond VK3XU  
43 Boyana Cres., Croydon, 3136

## **CONSTRUCTION**

The bulk of components are accommodated upon six double-sided printed circuit boards housed in a commercially available case measuring 28 cm W, 11 cm H, 27 cm D. A suggested layout is shown in the photo. The VFO should be enclosed in a diecast box in order to shield it from the other circuits and to slow down temperature effects. The VFO assembly is mounted upon four rubber grommets to obtain thermal insulation from the heat producing components and make capacitor shaft alignment less critical. The variable capacitor must be connected to the vernier drive with an insulated flexible coupler. The capacitor used in the prototype is a 100 + 200 pF one available from several sources here. Another suitable type is a Roblan RMG1-100 available from Watkin Wynne of Sydney. A hole in the lid of the box above C3 will allow easy adjustment of the VFO range. It is possible to mount the PCBs directly on to the case with screws and nuts. If the case is anodized (as in the prototype), copper braid should be used to join the grounds of all the board together as shown.

Miniature coax is ideal for all the necessary coax runs. It is important to solder a shield between the switch wafers S1a and S1b, c. This is easily done by removing the rear wafer and soldering on a piece of PCB with a hole cut for the shaft as shown. The rear wafer is then replaced. Do not be tempted to use this shield as a ground point for coax. The braids for cabling to S1a should all be joined, but not grounded at this point. The same applies to the output LPF switch, S1b, c. The circuit diagram attempts to illustrate this. This measure is necessary to prevent instability in the output amplifier.

The VFO voltage regulator U1 should be mounted on, but insulated from, the VFO



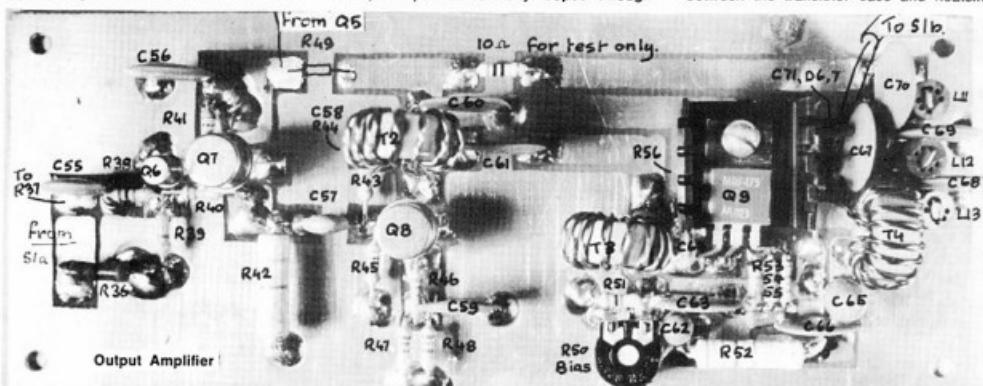
VEO

box. The power supply regulators U11 and U12 must be mounted upon the rear panel of the case. U11 will require a mica insulator and nylon washer as for U1. Heat-sink compound should be used for thermal transfer, but petroleum jelly has been found to be a suitable substitute.

The broadband transformers T1-T4 may be fabricated as follows: Place the ends of two 35 cm lengths of 24 B & S enamelled wire in a vice. The other ends are twisted together and fixed in the chuck of a hand drill. Whilst keeping the wires taut, the drill is turned until there are about 2 or 3 twists per cm. The drill is then tugged to "set" the twists. After removal from the drill and vice, the pair is carefully looped through

a Neosid 4327/2/F25 toroid until a neat single layer winding is obtained. The final number of loops should be about 15. An ohmmeter may be used to locate the respective windings. It is essential that the end of one winding is connected to the start of the other winding to form the centre tap. The toroids are available from Watkins-Wynne or J. H. McGrath of Melbourne.

Output transistor Q9 must have a TO220 heatsink attached. The heatsink should be mounted upon an insulated stand-off, and the legs bent down and soldered to the board. A smear of heatsink compound (as for the regulator ICs) must be applied between the transistor case and heatsink.



About nine holes should be punched in the top of the lid, and another nine in the side near the output amplifier to allow ventilation of Q9.

During construction, each stage may be built and tested individually. The order could be: Power supply, VFO, keying, dividers, amplifier, output filters and TR switch. Copies of artwork for PCB layouts may be obtained by sending SAE to the author.

## **OPERATION**

The quiescent current through Q9 should be adjusted to about 100 mA. This can be done by measuring the drop across the emitter resistors and adjusting R50 so that this voltage reads 0.2V. R50 should be

effectively shortened when voltage is first applied.

Tuning range may be set by adjusting C3 and monitoring the VFO frequency output with a counter or receiver which covers 28 MHz. After adjustment there should be a bit to spare at each end of the tuning range.

The output meter indicates about 2W at half-scale when driving a pure 50 ohm load. The level should not be pushed much beyond 2W output. A dummy load for testing could consist of two 100 ohm 1W carbon resistors in parallel, or a 56 ohm resistor in parallel with a 6V, 20 mA globe as a visual indicator. These items should

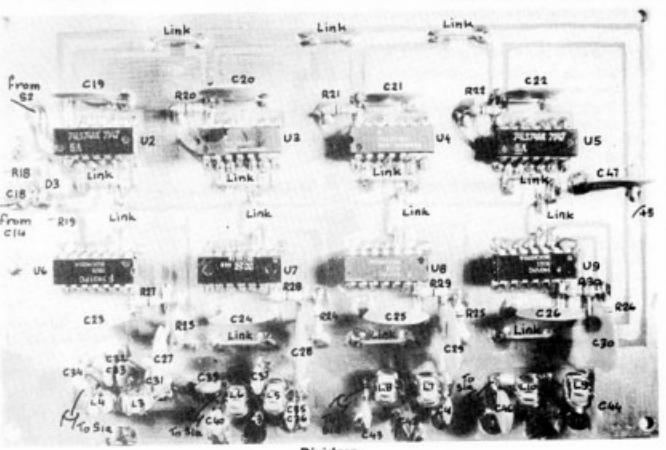
be soldered to a length of 50 ohm coax and connector.

To net the VFO, S2 is placed in the net position, and a signal will be heard on the receiver. If the key is accidentally operated whilst netting, no signal is put to air, as Q-bar goes to the low state and disables the dividers. In order to tune a following device such as a tube amplifier or ATU, it will be necessary to send a rapid string of dots, rather than a steady carrier, otherwise the keying mono will time out.

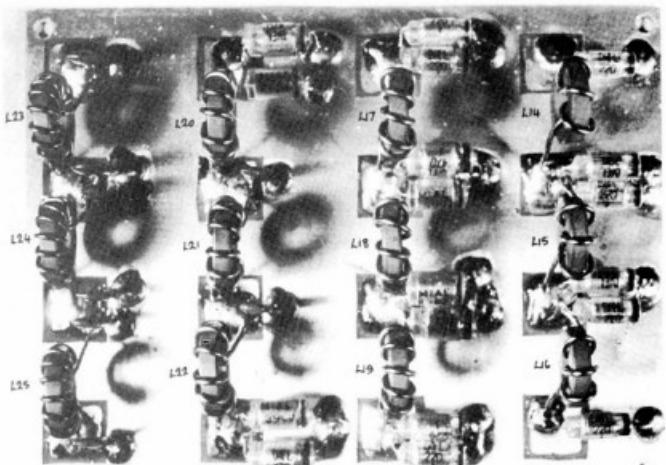
Photographs provided by Nick Kane

## REFERENCES

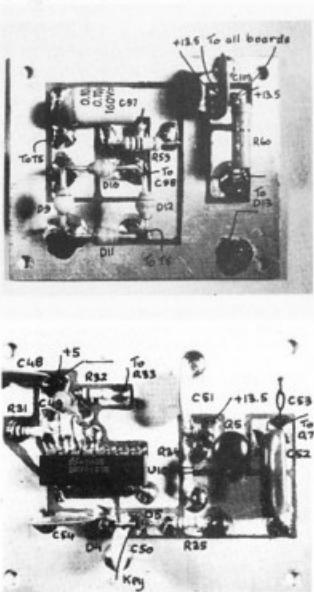
- REFERENCES**  
Fairchild TTL Data Book.  
Motorola RF Data Book.  
Solid-State Design — ARRL.



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# 'Half as much is just as good' or the VK2ALG CMOS-Bug

Terry R. Clark VK2ALG  
PO Box 537, Albury 2640

## WHY?

For some time there have been many excellent electronic keyers on the world-wide market. These plus several home-brew keyers have kept most CW buffs happy. However some CW operators prefer to use the semi-automatic "Bug Key". One argument is that by having to make their dashes manually their wrists are kept supple, thus making the transition back to a straight key easier. But there is one disadvantage with a Bug Key. It is very difficult to quickly slow them down owing to the number of critical mechanical adjustments that have to be made to QRS. It would be much easier if the speed could be changed by just turning a knob. Why buy a whole keyer when you only need half of one?

Although there have been many "Electronic Bug Keys" in the past, they have all suffered from various defects — either their speed has tended to vary, they loose their 1:1 mark/space ratio on dots when their speed is changed, or they simply use too much power.

For this design the following parameters were laid down:

- (a) constant mark/space ratio on dots whatever speed used
- (b) high dot speed stability
- (c) capable of keying grid-block and solid-state Tx
- (d) low power drain — battery operation for portable
- (e) use readily available components
- (f) cheap to build.

If one considers under \$20 for the complete unit including all hardware to be cheap, then all design parameters have been met.

## HOW DOES IT WORK?

Complementary Metal On Silicon (CMOS) integrated circuits were chosen because of their wide supply voltage tolerance (3V-15V) and their extremely low power drain (micro-amps).

Let us first consider the production of DOTS. The circuit in Fig. 1 shows a simple BCD counter connected to a NOR gate. The counter is supplied with a continuous train of clock-pulses. Output from the BCD counter is taken from the first stage or Q1 to obtain the "toggle" effect thus ensuring a 1:1 mark/space ratio. The BCD counter advances one count on the trailing edge of each clock-pulse. The counter requires a logical low on its "reset" in put to enable it to count. The "reset" of the BCD counter is also connected to one input of the NOR gate, so that the "reset" input not only controls the BCD counter but also the NOR gate. The output from this circuit is taken from the output of the NOR gate. In the quiescent state the "reset" input is held High by a pull-up resistor and the operation of the Dot Paddle takes the reset and one gate of the NOR gate Low.

In Quiescent state, Reset H, Q1 held Low, holding NOR output L, when the paddle is operated, Q1 remains L, turning NOR output H, after the first clock-pulse Q1 goes High, turning NOR output L, after the second clock-pulse Q1 goes Low, turning NOR output H, after the third clock-pulse Q1 goes High, turning NOR output L, after the fourth clock-pulse Q1 goes Low, turning NOR output H, after the fifth clock-pulse Q1 goes High, turning NOR output L.

Therefore a train of high going square-wave pulses appear at the NOR gate output for as long as the BCD counter rest remains Low. When the rest is returned to the High gate, by releasing the Dot Paddle, the output from the NOR gate immediately goes Low, thus cutting off the train of pulses. In other words when the Dot Paddle takes the rest pin of the BCD counter LOW the NOR gate commences a dot, the dot is cut off by the first clock-pulse, the second dot is started by the second clock-pulse and cut off by the third clock-pulse, etc. The dots cease as soon as the Dot Paddle is released.

There is one disadvantage. As the BCD counter responds to the clock-pulses there can occur a circumstance when the Dot Paddle is operated during a part of the clock-pulse which is High, thus the first dot produced will be shorter than the rest. In order to remove this fault the clock is speeded up and another BCD counter dividing by ten placed in the train. See Fig. 2. The "reset" input of this second BCD counter is connected to the rest input of the original counter and to the same input of the NOR gate which is also connected to the Dot Paddle. Therefore both counters are controlled together. In this way the error on the first dot length is divided by ten to make it unnoticeable in practice. The higher clock speed also improves the frequency stability of the clock-pulse circuit. Note that dots commence as soon as the paddle makes contact.

Now let us consider the production of manual DASHES. A simple logic inverter is used for this function. See Fig. 3. The input to the inverter is held High by a pull-up resistor, thus holding the output Low. The Dash Paddle takes the input Low turning the output High. When the Dash Paddle is released the output returns to the Low state. Note that the dash signal is high going the same as for the dots. By using a single-lever paddle only dots or dashes can be produced, never both at the same time.

The high going dot and dash signals are then combined in a NOR gate which also inverts the signal. This is then inverted and used to drive either keying transistors or a keying relay. Refer to Fig. 4.

Two NAND gates are used to produce a train of clock-pulses. A variable resistor is incorporated to vary the speed of the clock

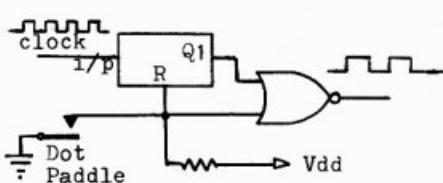


FIGURE 1

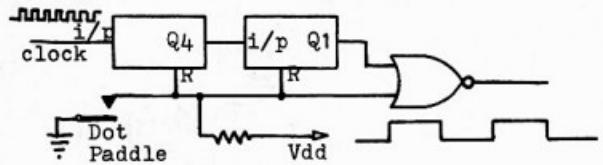


FIGURE 2

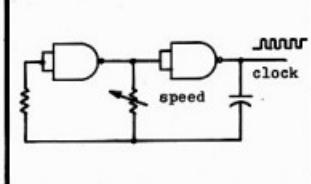


FIGURE 5

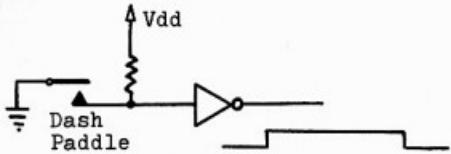


FIGURE 3

and hence the speed of the dots produced. See Fig. 5. Note that each dot is made up of ten clock-pulses and each space between the dots is another ten clock-pulses. Therefore the clock speed is twenty times the dot speed. By using BCD counters a 1 : 1 mark/space ratio is assured no matter what speed is used or no matter what the shape of the clock-pulse is.

#### PRACTICAL CONSIDERATIONS

From the theoretical diagrams, Figs. 1-5, it will be seen that two NOR gates, two NAND gates, two INVERTERS and two BCD counters are required. As NOR gates come packaged four to a chip, we can use the two spare gates as inverters. NAND gates also come four to a chip and the remaining two gates can be used to buffer the Dot Paddle and hence isolate the BCD counters from the paddle. Fortunately the CMOS 4518 chip contains two BCD counters. Therefore the total IC complement is one quad NAND gate 4011 chip, one quad NOR gate 4001 chip and one dual BCD counter 4518 chip. A total of three integrated circuits in which every input is used.

In order to operate the BCD counters as required we feed the input clock-pulses to the "Enable" input and ground the "Clock" inputs. This ensures the counters operate on the negative going trailing edge of each clock-pulse.

Refer to the main circuit diagram of the CMOS-BUG, Fig. 6. NAND gates 1B and 1C form the continuously running clock which speed is controlled by the 500 Kohm linear potentiometer. NAND gates 1A and 1D buffer the Dot Paddle and their output controls one input to NOR gate 3A and the reset functions of both BCD counters. NOR gate 3D is connected as an inverter and produces the Dash Signal, whilst NOR gate 3B combines the Dot and Dash signals which are then inverted by NOR gate 3C.

The positive going CW signal is then fed to the base connections of two BC108 (2N2222) bipolar transistors. One BC108 supplies sufficient drive to key Solid-State transmitters requiring up to 100 mA and up to 30V positive with respect to ground. The second BC108 drives a PNP MJ2955 bipolar transistor which provides keying for

Grid-Block transmitters requiring up to 10A and up to 70V negative with respect to ground.

Keying transistors were chosen because of the smaller supply drain required to drive bipolar transistors than that required to operate a small relay. Don't forget one of the design parameters was low supply drain for battery operation.

By using CMOS integrated circuits a considerable saving in quiescent drain has been achieved. No monitoring has been fitted, this is to (a) save battery power and (b) is not necessary as most amateur transmitters in use already have a CW side-tone monitor oscillator already fitted. The measured key-up current is 0.07 mA. The key-down current is 11.2 mA, most of which is used to drive the bipolar transistors. By using a No. 216 9V battery as the Vdd supply it is estimated that several months of normal amateur use will be obtained. In practice the on/off switch is not really required.

One of the main problems with all electronic keyers is to keep RF out of them. In the case of the CMOS-BUG the Vdd supply is de-coupled by a 1 mfd tantalum capacitor and the supply pin to each IC is bypassed to ground with a 0.01 mfd Green-cap. These green caps are mounted as close to their ICs as possible. The paddle pull-up resistors are also bypassed to ground with 0.01 mfd green caps. Each input and output to the unit has added inductance in the form of small ferrite beads and also bypassed with 0.01 mfd green caps to ground. The base lead of the MJ2955 transistor is also fitted with a ferrite bead. The whole unit is screened by fitting it in a metal box which is connected through the transmitter keying lead to the station main RF ground.

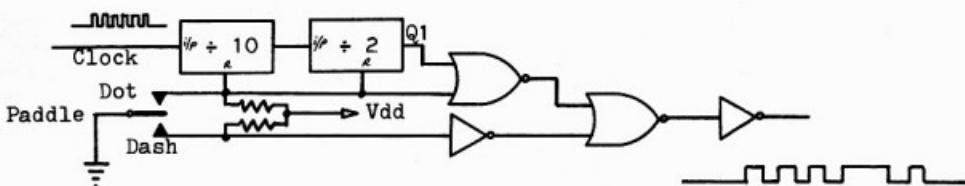


FIGURE 4

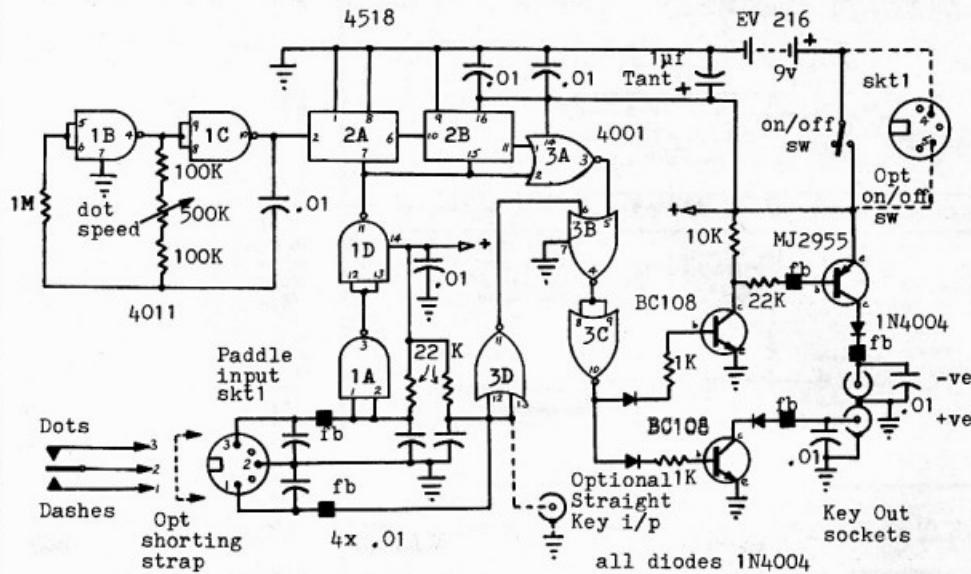


FIGURE 6

#### CONSTRUCTION

All components are mounted on a small piece of Veroboard, or similar. As this project was a one-off circuit no attempt was made to produce a printed circuit board, though one can always be used. Sockets were used to mount the integrated circuits to make replacement easier and to negate any static discharge problems during construction. The IC's can be soldered in directly if required. The paddle input is brought in via a 5-pin DIN socket. Keying output is taken out via two RCA type sockets. Each output has a 1N4004 diode in series to protect the keying transistors should the CMOS-BUG be accidentally connected to the wrong sort of transmitter. A diecast metal box was used for this unit. No problems with RFI have been encountered even with the unit sitting on the tank circuit of the transmitter.

#### LIST OF PARTS

1 CMOS IC 4001 quad NOR, 1 CMOS IC 4011 quad NAND, 1 CMOS IC 4518 dual BCD, 2 BC108 bipolar transistors, 1 MJ2955 bipolar transistor, 4 1N4004 silicon diodes, 5 small ferrite beads, 1 1 mfd 35V tantalum capacitor, 0.01 0.01 mfd Greencap capacitors, 2 1 Kohn 1/4W resistors, 1 10 Kohn 1/4W resistor, 3 22 Kohn 1/4W resistors, 2 100 Kohn 1/4W resistors, 1 1 Mohn 1/4W resistor, 1 500 Kohn linear potentiometer, 1 sub-min. dpdt. switch, 1 diecast metal box (120 x 40 x 65 mm), 4

self-stick rubber feet, 1 knob, 1 216 battery clip, 1 5-pin DIN chassis mount socket, 2 RCA chassis mount sockets, 2 14 pin DIP sockets, 1 16 pin DWIP socket, 1 small piece Veroboard (110 x 30 mm), hook-up wire, nuts and bolts, spacers, paint, lettering, etc.

All components readily available from several sources. Estimated cost at August 1981 prices — under \$20.

#### OPTIONS

Should you wish to switch off the battery when not in use and do not want to fit a separate switch there is a neat little option available. The paddle only uses three pins (1, 2, 3) of the 5-pin DIN plug and socket. Therefore the battery positive lead can be wired to pin 4 of the DIN socket and the circuit Vdd taken from pin 5. A shorting strap across pins 4 and 5 of the DIN plug will then act as an on/off switch by simply unplugging the paddle from the unit.

Should you wish to use the CMOS-BUG and also use your standard Morse key the easiest way is to wire a third RCA socket in parallel with the dash paddle input from pins 12 and 13 of the NOR gate 3D. The straight key will then operate normally, though you will of course be using the transistors to actually key the transmitter. This has the added benefit that a softer keying results owing to the rise-time of the bipolar transistors.

#### CONCLUSION

The CMOS-BUG was fun to build and a dream to operate. It is used in conjunction with a Vibroplex Vibro-Paddle which has the same lever and operational "feel" as my old Vibroplex "Original" Bug Key. I can change from the mechanical bug to the electronic one very easily. However by now being able to change my operating speed very easily I am sad to report that the old faithful "Original" Vibroplex is now gathering dust. Who said CW was dead?

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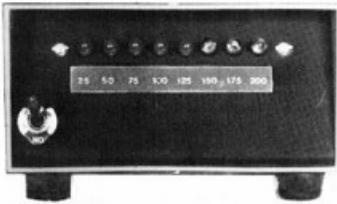
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# Towers and the Law

John Ingham VK5KG

Those readers who have had access to the South Australian Divisional Journal and to the Divisional news broadcasts from VK5, will no doubt have followed the history of the fight in South Australia to preserve the rights of the amateur radio operator to erect towers and antennas. An article entitled the same as the above recently appeared in the VK5 Journal and provided a large amount of background to the cases which have been fought in the courts. Should you wish to review same, I am sure your Divisional Councillor will have access to both that and previous articles from that publication.

The main reason for this missive is to bring amateur radio operators throughout Australia up to date with what has been going on in VK5.

First, let me briefly explain a little of the legislation which exists in South Australia applicable to this subject. In that State we are governed by two sets of legislation. Firstly there is the Planning Act. Under this Act the various Local Government Authorities (Councils etc.) set up their own Planning Regulations, which, generally speaking are fairly standard. Within this Act is a section which in effect says that if a structure is erected 10 metres or less in height, building permission is not required. Therefore an amateur may go ahead and erect his mast or antenna up to that height.

The second piece of legislation is, of course, the Building Act. This requires that for certain structures (a tower above the 10 metre height), a Building Permit must be obtained. Sketches or drawings must be submitted together with stress calculations, etc. This latter requirement we have no argument with, and in fact it is probably to the benefit of the amateur that his tower is proven to be structurally sound and properly engineered.

The major problems encountered encompass the difficulties with planning permission, and this would seem to be universal throughout Australia. Many amateurs in South Australia have in good faith erected an antenna under the 10 metre height limit and from thereon encountered no problems. Others have not been so lucky. Several years ago an amateur was confronted by a Council with a demand that he take his tower down. Following some negotiation, the amateur, under guidance from the Division, appealed to the Planning Appeals Board. He was represented by a very well informed, and indeed dedicated, member of our fraternity who was also supported by witnesses expert in the field of communications. We lost that case and learned some valuable lessons.

- (a) It is most desirable that the moment you enter the courts you are represented by a trained member of the legal profession;
- (b) That you should acquire the services of a professional Town Planner.

Incidentally, even after this setback, further reasonable negotiation and compromise with the Council concerned led to the amateur being able to still run his station with the tower slightly lower and located differently.

Further discussion with legal advisers, now brought upon the scene, evidenced the opinion that this case should not be proceeded with by appeal to a higher court and also a firming of the premise that we should pick only suitable cases to pursue. In other words you only push ahead and hard on a case you have a very fair certainty of winning. This is really only common sense when all is said and done.

It then came about that a certain district council in the Adelaide area seemed to suddenly take a dislike to amateur radio antennas, irrespective of their height and went about issuing notices to amateurs to remove their antennas, masts and towers. The battle really began in earnest! Much correspondence was entered into with the council with the individual operators being advised by the Division. The matter even reached the office of the Ombudsman who determined that the council was indeed being unreasonable. Even this opinion was to no avail.

The case involved a commercially built 4-element 10 metre quad type antenna, which to any amateur looked clean, tidy and an item of probably great beauty. To the council and neighbours it was an eyesore and objectionable. The council was adamant, the antenna and supporting structure must come down. The Divisional Council thought that this was a good case to fight and our legal advisers agreed. The result was an appeal by the amateur to the Planning Appeals Board, which comprises a judge and two commissioners.

Here we were in for a surprise. The judge decided that rather than listen to an argument based on the intricacies of law, regulations etc., he would hear a preliminary point. This point expressed in simple terms was to the effect of "Is amateur radio a normal home activity?"

Written evidence only was submitted by the District Council through their Planning Officer, the Department of Communications which had been subpoenaed by the Council to present evidence, a lawyer represent-

ing neighbours of the amateur concerned, and by the lawyer representing the amateur through arrangements with the Division. Little argument ensued over acceptance of the evidence except that our lawyer managed to have struck off the Council's evidence by the Planning Officer a certain amount as being only opinion. Acceptance of written evidence only reduced time and therefore cost.

The evidence provided by the Division included a survey of three metropolitan council districts with large maps indicating the location of all known amateur stations in the areas and an index describing the antenna installations at each location, copies of the Regulations Handbook, the Callbook, photographs etc. Based on the evidence thus submitted and accepted by all parties the lawyers presented their arguments. This whole process occupied the course of one day with a break for lunch. During the case it became clear that at least the judge was aware of problems with such things as TVI "especially when the cricket was on". He also was aware that such problems had nothing to do with Local Government Authorities. The court advised that it would hand down a written judgment, and so we waited for the result. Happily the result was in our favour. "Amateur radio was regarded as a normal home activity".

Let me now make a simple comment on this decision. If you carry on from your home something which is normally accepted as a household activity, it necessarily follows that you should be permitted to establish the other normal adjuncts associated with that activity. In the case of amateur radio that of course includes antennas, and their supporting structures. Thus the decision of the court was a most important one.

Subsequently the District Council appealed against the decision of the Planning Appeals Board which meant that the matter was then in the hands of the Supreme Court of South Australia.

What a blow, what worry for those concerned in fighting this case and what trepidation regarding the matter of costs etc. After much deliberation the Divisional Council decided to launch a special appeal under the title of the "Save Our Hobby"

Fund". The name signifies the great importance which the Division attached to this matter. I am happy to that many of the VK5 amateurs rallied to the cause and already to date an amount exceeding \$4000 has been subscribed, including donations from two of our sister Divisions. This set our minds a little easier as to the problems of cost but which way would the case go?

Such an important principle was at stake that should we now lose we would have no recourse but to go yet higher again and submit an appeal to the Full Court. Thankfully such was not for our purposes to eventuate, however you can imagine the heart tearing effect on those responsible for waging this campaign. It would, by the way, appear unlikely that the District Council will appeal further but we are still prepared for even this unlikely event.

As you will have gathered, the Supreme Court judge dismissed the appeal and again found in favour of the amateur. This case was heard in the middle of December 1981 and as yet the written judgment has not been handed down. The judge did in his verbal decision indicate that he would provide in the written judgment guidance for both the amateur radio operator and the Local Government Authorities. He agreed that amateur radio was a normal home activity and that if carried out in a normal manner should not be prevented. This of course means that you do not have to have your neighbours' permission to pursue your hobby and also that within reason the local council should also not impede your activity. The judge did not at this stage lay down any height limits on masts, however, he indicated that it seemed "normal" for an amateur to erect a mast or tower of say, 40, 50 or perhaps 60 feet in height. The outlandish case of a 200 foot tower would of course be a completely different matter and definitely would not be regarded as "normal". The judge concerned is renowned for his well considered, detailed, sound, and reasoned written judgments, and same is awaited with considerable interest.

For the first time in any Supreme Court in Australia, to our knowledge, a decision has been made both affecting and in favour of amateur radio.

Whilst you may think that a decision such as this brought down in a South Australian court would not be of use in the other States, such is not really the case. The deliberations of a judge, no doubt held in high esteem by virtue of his position, do carry a fair amount of weight when similar matters come up in courts elsewhere in the country, and even also overseas where the legal system follow a similar process to ours. In legal terms reference to a case determined such as this represents "a most persuasive argument". As such the case fought in VK5 presents a very valuable precedent on behalf of all amateur radio operators in Australia.

Over a period of time the value of such cases as this will be seen and felt by the amateur radio fraternity.

I would, however, reiterate the value of careful selection of such cases and a plan-

ned campaign carried out under legal advice to obtain the maximum benefit for our hobby.

To this end, during the latter part of 1981 the South Australian Division circulated throughout the various Divisions of the WIA, a proposal for the setting up of a National Special Purpose Fund to which the Amateur Service could have recourse under a series of guidelines, to develop such campaigns as are being fought regarding the matter of towers as at present. Please, though, do remember that the issue of towers is not the only one. There is yet to be, I believe, any litigation with respect to the matter of Interference, TVI, HFI etc., and I am sure you will agree that when such do eventuate they will be of major importance to us all.

It is highly possible that the submission referred to may come up in association with a Federal Agenda Item at the next Federal Convention. If you are interested in such a subject I suggest that you approach your Federal Councillor and ask to see a copy of the submission referred to, use it as a basis for discussion and then submit your ideas and comments, preferably in written form. Such ideas and suggestions as you may have could well be most valuable.

To the mind of the writer we must have the ability to fight for our own protection at any time and to do this we must have the resources in funds, knowledge and planning to call on. It is most important that we be prepared. To quote an outlandish example: "What if the Government announced tomorrow that amateur radio was to be disbanded as from the first day of next year?"

Such challenges to the welfare of amateur radio, unlikely as the one quoted may be, but just as important, must occur. It thus behoves every member of our service to get together and provide the backing both in funds and membership to support those willing workers heading our cause.

THINK ABOUT IT, then DO SOMETHING ABOUT IT.

Finally, may I humbly make just a few suggestions for the guidance of anyone contemplating pushing our cause further along these lines.

1. Call in a trained legal man right from the start.
2. Only take up cases which you have a good chance of winning.
3. Obtain the services of a professional town planner.
4. Co-ordinate your plan of campaign carefully and preferably under the auspices of your Division of the WIA.
5. Try as far as you can to negotiate with the authorities before taking the matter to court.
6. Be prepared in your negotiations to give way and to compromise. (A 40 foot tower instead of a 70 foot tower is better than no tower at all.)
7. Be realistic in your aims and adopt a reasonable position. (Do not become dogmatic regarding your case.)

8. Seek advice from others who have been through the same problems. (The VK5 Division would be pleased to help with its experience wherever possible.)
9. Learn as much as you can about such things as the regulations which apply, other cases which may present a precedent. Have as much technical expertise for witness purposes as possible, and as much written support as you can find.
10. Try and find a legal representative who can grasp technical matters. (This one is a tall order and in VK5 we have been perhaps lucky.)
11. Approach as many of your local government councillors as possible in a polite manner and present a good image of amateur radio to them. Invite them to your shack to see for themselves what it is all about. Don't forget other employees of the council either, if they speak well of you, the word will get around.
12. In most cases, litigation should be in the name of the individual alone, NOT the WIA or Club, etc. If this is not done it is possible that a lesser attitude could be taken by the courts.
13. Keep in mind the good of amateur radio for the benefit of all our fraternity both here and on a worldwide basis. ■

## CALL SIGNS

Attention of members is again drawn to the habit of omitting the prefix "VK" when announcing call signs. This is particularly noticeable in the case of phone operation.

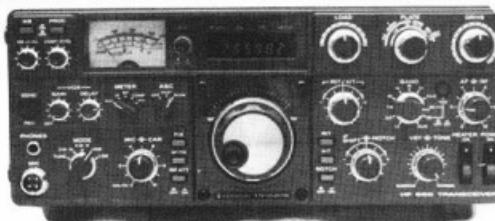
Such practice is not in accordance with International requirements and contravenes the Wireless Telegraphy Act. Operators should be careful that they use the full call sign allotted to the station concerned.

- This appeared in AR August 1955 and is again necessary as a reminder.
- Remember that during a "session" of short to and fro transmissions it is only necessary to announce call signs at the beginning of the "session" and not less than every 10 minutes thereafter
- — and this applies equally to contacts through the repeater.
- Separate concessions apply only in respect of WICEN communications.

## REMINDER

THIS WILL BE YOUR  
LAST ISSUE OF AR  
IF  
YOU ARE STILL  
UNFINANCIAL

# The Kenwood TS-830 S HF Transceiver



In the August 1981 issue of Amateur Radio we looked at the new Kenwood TS-830S transceiver. In fact the TS-830S was the first of the two to arrive in this country, however it seems that the two would probably have been developed at the same time. Therefore the opening remarks of that earlier review apply equally to the TS-830S. Let's start by looking at just what the 830S has to offer before looking at it in detail.

The TS-830S is an all band HF SSB/CW transceiver with full coverage of all amateur bands from 160 to 10 metres, including the new bands at 10, 18 and 24 MHz. Operating features include a noise blower with adjustable level control. It has an RF transmit audio processor with compression level control and metering of the amount of compression in dB. The usual Kenwood IF shift is now supplemented with variable bandwidth tuning and a notch filter. In addition, a wide selection of optional filters takes care of any selectivity requirements. A feature that I find new on an amateur transceiver is, believe it or not, a tone control. Both transmit and receive offset tuning are included. VOX with easy to adjust front panel controls and that old TS-820 favourite, the transmit monitor facility. Like the TS-530S, it uses 6146 tubes in the final and the whole thing is packaged into an identical cabinet and front panel assembly. From the other side of the room, it would be difficult to tell the two apart.

As the TS-530 review stated, this transceiver was actually based on the TS-820 with both sharing a single conversion plus PLL set-up. The TS-830, on the other hand, has now gone to a double conversion scheme and is actually more closely related to the R-820 receiver than to the old 820 transceiver. However, the R-820 was a triple conversion circuit using a 50 kHz section which incorporated the notch filter. The TS-830 notch filter is in the 455 kHz second IF.

A 12 volt DC operation facility is offered as an optional extra with the 830 and a 12-pin connector is provided for the AC or possible DC input. This is certainly an improvement over the 530 where the A/C cord connects straight into the set, the DC option not being available.

Possibly many present TS-820 owners are considering the 830 as a replacement or update. What does it have to offer either as a replacement or as an initial purchase for a new amateur? Briefly quite a lot, but let's look at it in some detail.

## TS-830S CIRCUIT FEATURES

The double conversion circuit uses frequencies 8831 kHz and 456 kHz with the RF speech processor operating at 456 kHz. Only one option is offered for an SSB filter and this is installed as standard. For the CW man there is a wide choice of narrow filters that can be installed in either or both the 8831 or 456 kHz sections. Our review transceiver had only the standard SSB filter installed, we are therefore unable to comment on the effectiveness of the CW filters. The narrow SSB (1.8 kHz) filter offered with the TS-530S is not on the optional list for the 830 as the variable bandwidth tuning and IF shift make this unnecessary, as we shall later see. It would seem that the 830 SSB filter has been upgraded compared with the old 820. Both are 2.4 kHz at -6 dB but at -60 dB the 830 is rated at 3.6 kHz against 4.4 kHz for the 820.

The receiver front end follows that of the 530 with 3SK73 dual gate Mosfet followed by an FET buffer into two balanced FETs in the first mixer. Kenwood claim that the front end operates at low gain for improved dynamic range and low noise level. The receiver noise blower operates in the 8831 kHz section and the notch filter which works on the old "Q" multiplier principle is in the 456 kHz section.

The variable bandwidth operates by effectively shifting the 456 kHz band pass in relation to the 8831 kHz band pass. The band width control tunes the second conversion crystal oscillator at a nominal 8375 kHz with a VCO circuit. It is pleasing to see that RF negative feedback is applied across the final parallel 6146 output stage, as in the old TS-820, but as with the 530 no third order distortion figures are quoted. The nicely presented advertising folder shows a spectrum analyzer display for 3rd

and 5th order distortion but omits to mention the graph scale. At a guess it could be about -38 dB. If so, that's a very acceptable figure.

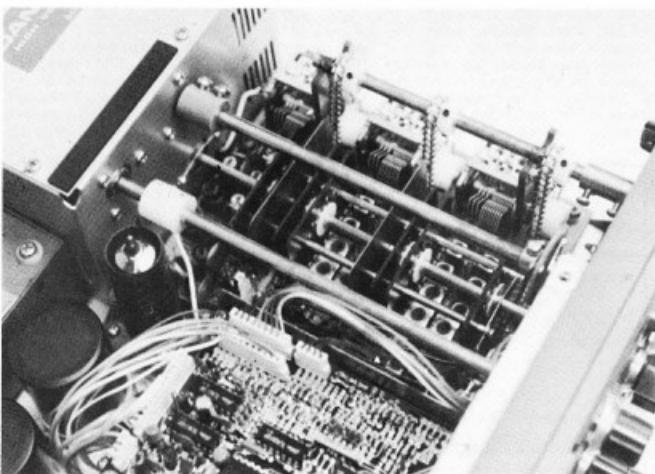
I see that the final power input rating has been increased compared with the 820S. SSB is up from 200 to 220 watts and CW from 160 to 180 watts. Output tests show, however, that the increased input specification is not matched by more output power.

## THE TS-830S ON THE AIR

This transceiver was put to test in several areas, first the VFO. We carried out several drift tests, all from a cold start and using VNG on 7.5 MHz as the standard. Over several three hour periods all under different ambient temperature conditions, maximum drift measured was only 60 Hz total — a quite remarkable figure. One odd thing was noted, however. After several hours

switched off, the VFO would come back on a slightly different frequency, maybe 150 or 200 Hz away from the previous stabilized frequency. It's not an effect that would ever be noticed in normal operation however. As with the 530, dial readout is now primarily from the digital display. The unique mono-scale dial of the TS-820 has been dropped in favour of a simple dial with 10 kHz calibration points. Tuning rate is now a rather fast four turns per 100 kHz against five for the 820. The dial movement is very smooth, however, and the new digital readout is about half as large again as the 820.

No doubt most prospective users will be interested in just how well the IF shift, variable selectivity and notch filter work out in separating signals on a crowded band. Let's look at each in turn. IF shift is certainly useful to a point, but as the high frequency content of the signal is reduced let's say to reduce the effect of a heterodyne, there is a corresponding increase in the low frequency end. It's often a case of out of the fire into the frying pan. Variable selectivity on the other hand gives a reduction in either high or low response, but this does not occur in a symmetrical manner so that by the time you have eliminated the interference the wanted signal has gone as well. Now with the 830, we have both these controls and putting the two together works wonders. As the selectivity is increased you can then shift this across the signal to provide a balanced cut at both the high and low end. SSB band width can be reduced down to perhaps one kHz and yet the signal will still be readable. For the infrequent CW operator the band width can be reduced to five or six hundred Hertz and then adjusted with the IF shift to provide the desired beat note. I get the impression that Kenwood won't be selling too many CW filters to go with the 830s. The notch



Top view of preselector/driver tuning section.

filter was most effective. While one might consider that heterodynes are a thing of the past with SSB, I find that the on-air tuner-upper is one of the greatest problems on 20 metres these days. The notch filter removes these like magic. Kenwood quote 40 dB attenuation and there is no doubt that this is easily met. We found that a heterodyne running around S9 on the meter could be reduced to S0. Putting all of these adjuncts together really means that it is possible to pull through otherwise unreadable signals. Power output was checked on each band as follows: 160, 80, 40, 20, 15 and 10 metres gave 110, 140,

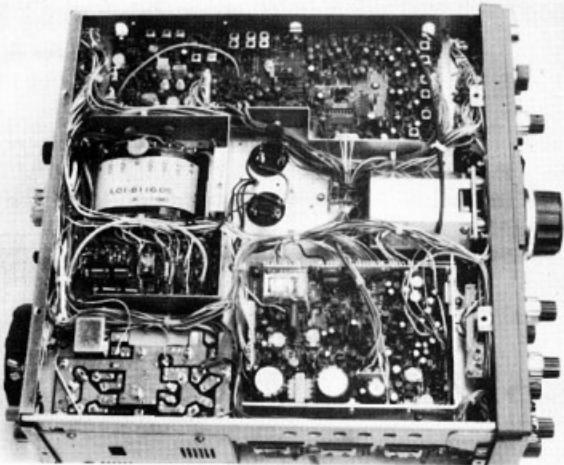
130, 115, 110 and 90 watts carrier. PEP output on each band was essentially the same when viewed on the scope. We were unable to check output on the new WARC bands as diodes have been installed to stop transmission, but a simple modification fully described in the manual allows this to be changed.

The speech processor worked well. In this test we had to rely on reports received from worked stations, but all were unanimous in their reports. There was no distortion or change in quality but a decided increase in audio level. Back to the receive side, the new adjustable noise blanker did not come up to expectations. It was quite effective on car ignition noise but had little effect on other forms of noise. Increasing the blanking level did not distort the signals to any great extent but it did introduce some cross modulation on busy and crowded bands. Cross modulation and overloading under normal conditions were totally absent. Even listening to another transmitter in the same shack did not cause any noticeable overload. VOX operation was smooth and easy, although I felt a little extra delay would be worth while. Relays are reasonably quiet. CW operation with VOX was good. With a short delay time set it was possible to approach full break in operation.

The tone control is a simple top cut type, and a useful amount of high frequency attenuation is provided. With all the other bandpass shaping circuits in the transceiver many might question its inclusion. However it works — its use I leave to you.

#### OPTIONAL ACCESSORIES

All of the accessories offered for use with the 830 are common with the 530, with the exception of the DC power inverter. There is a digital VFO type VFO-230, antenna



Under chassis view.

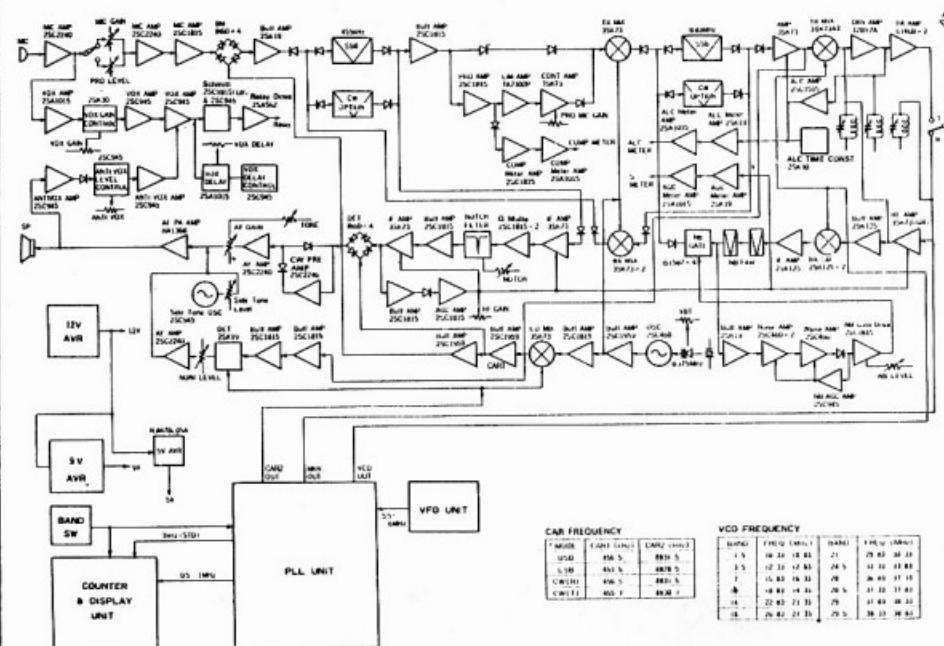
tuner type AT-230, and external speaker SP-230, which includes switchable audio filters. A linear amplifier, a range of hand or desk microphones and matching headphones are also offered. As with the 530S, a microphone is not included in the purchase price, but either high or low impedance types can be used.

#### INSTRUCTION BOOK

In my review of the TS-830 I noted that the instruction book was typical Kenwood. So is the one for the 830. I feel that it should not be too hard to include a circuit description section at least. Perhaps today's breed of amateurs aren't interested in how their set works just so long as it

does. But if it is considered necessary to print basic alignment details surely it's necessary to know how the set works. Having said that, the basic operating instructions are well covered with easy to understand text and clear illustrations.

Transceiver supplied by Vicom International P/L, 57 City Rd., S. Melbourne. ■



TS 830 S block diagram.



From "The Propagator", October 1981

# The Saga of the Mobile Porcupine

Philip Greentree VK2DPN/ZL3TKF  
(Ex VK2VUQ)

Soon after receiving my VK novice licence in February 1980, I realised that operating mobile was not a disadvantage but in fact an exciting challenge.

In my profession I drive an average of 60,000 km per year in the lower North Coast region of N.S.W., and Amateur Radio has become a valued companion during the long hours driving and many nights away from my Newcastle home. The challenge of attempting DXCC Mobile under VK Novice restrictions of 30 watts PEP and narrow allocations on 10, 15 and 80 metres was accepted. As the cards arrived I realised I was within reach of Single band DXCC and WAZ Mobile on both 10m and 15m bands.

DXCC mobile was completed in seven months under my old VK novice call VK2VUQ, and was the first DXCC mobile ever issued by the Wireless Institute of Australia. Also received was DXCC mobile from CQ Magazine. Since then I have confirmed single band DXCC on each of 10, 15 and 20m under my full grade call of VK2DPN.

In the chase for WAZ I had to wait 18 months to find Zone 34, then worked five Hams in that area in a fortnight, proving the fickle nature of propagation.

One can imagine my feelings on receiving a letter from Leo Haisman, CQ Awards Manager, informing me that my WAZ was the first ever achieved mobile!

At the time of writing 38 zones are confirmed on 10m, 38 confirmed on 15m, 34 confirmed on 20m and 16 on 40m.

Multiband shows I only require 17 Zones to reach the CQ 150 Zone plateau — a world first for a mobile. WAC mobile has been achieved on 4 bands along with WAS mobile on 10m. I had to return an incorrect card and on receipt will apply to the ARRL for the first WAS mobile on 10m from VK.

Cards from 105 countries have been submitted to the Philippines ARS claiming the coveted DU United Nations award and believe I am one of the few VKs and the only mobile to qualify for this award. My DXCC count stands at 224 countries with 205 confirmed.

The question, no doubt, is how has this been achieved? Operating technique has been a significant factor, and I quickly adopted the philosophy "If you can hear them' you can work them". However, it is a waste of time just yelling wildly in a dog-pile as the base station linear and arrays will drown a mobile out. It is important to listen for a while to the DX station's style of operating and where he has propagation to. There is always a moment when you can break through the state-side kilowatt barrier and into the back of the DX station's beam.

In confirmation of this I have the "Worked All Pacific" Award from NZ and "Worked All Pacific Countries (45 countries) from the ISWL, and can honestly say that every country was worked independently of net operation, although I greatly enjoy the "camaraderie" of internationally famous DX nets such as ANZA on 15m, the Pacific DX and the Caribbean-Oceanic DX nets on 20m.



Philip Greentree VK2DPN in front of his mobile "ham shack". Antennae (l. to r.): 10m helical, 20m whip, 15/40m duoband whip. Philip is holding the 10m helical DX whip used to gain 28 MHz DXCC, WAZ, WAS, etc.

Secondly, if attention is not paid to the antenna system, forget the whole idea, as antennas are the key items.

The photographs will demonstrate my antenna layout.

On 10m a helical whip consisting of Teflon coated aluminium wire wound round a 1.5m long fibreglass rod is used and was shortened from 11m. I added a small circular capacity hat which broadbanded the helical, giving a maximum VSWR of 1.7 : 1 from 28.2 MHz to 29.1 MHz. On my previous vehicle this was mounted on the roof racks, but I now leave this in the trunk for when there is a 10m opening. I now use another smaller helical for 10m mounted on the front left fender for local and short-haul contacts. I can also switch this antenna into the car AM/FM stereo radio system and, believe me, FM stereo booms in on 103 MHz.

Australian made Scalar resonators are used on all other bands, although my Kenwood TS130S at full power produced some interesting corona effects — particularly on the lower frequencies. I will never forget the reaction of a Highway Patrol Officer one night as we were both waiting at traffic lights. He was frantically pointing towards my 40m whip yelling out "Your car's on fire — quickly get out". On checking I discovered that a 30 cm long corona sparking in time with SSB was looking very dramatic. I soon replaced the tuning rods with inverted conical top loading hats which solved the corona problems, broadbanded the resonators and increased their efficiency as demonstrated on a power meter.

The whips are made from aluminium tubing, cut to just over 1.5m and the multi-band base for the 40m and 15m resonators RVN in 45° offset was machined for me by another Newcastle Ham, Don VK2DXH, famous for his 12 element triband monster beam.

The antenna bases are designed and manufactured in New Zealand by ZL3RJ, and I believe them to be unsurpassed by any other base.

As the photographs indicate there are three HF mounts on the vehicle. The use of a luggage rack instead of a single roof bar is deliberate as it forms part of the ground plane. The rear mount was designed so that the antenna would be mounted above the trunk lid, giving a much better angle of radiation and avoiding the capacitive effect from the metal body of the car, as experienced with the traditional bumper mount. Rigid braces affix the vertical support pipe to each side of the car and are attached under the trunk lid.

Very close attention must be paid to the ground, more so than with a base station. The car's metal body is the antenna ground plane, and if there is any doubt about electrical contact between the roof racks and the car body, determined efforts must be made to achieve good electrical contact to the roof gutter. Small drill holes under the gutter ledge and self-tapping screws holding earthing straps from the roof racks involve little work and damage to the car and is easily rectified at trade-in time.

There is no doubt the larger the car the better the ground plane, as I am proving to myself having just changed to a new Ford Falcon, roughly 50 per cent larger than my previous medium size car.

Antennas for the various bands alter their characteristics according to their location on the mobile. Overall 10, 15 and 20m are vastly superior when mounted on the roof racks where they perform as omni-directional  $\frac{1}{4}$  wave ground planes. However, 4 band mobile operation calls for compromises, hence the configuration chosen.

Fifteen metres is very directional when rear mounted, but this proved to be advantageous as being a DX band one needs only point the car in the right direction for maximum effect. What I haven't established is whether there is actually any gain derived from the directivity of the radiation

pattern following the ground plane effect of the car's metal body. What I have established is up to 5 to 6 S points drop in my signal at the other end when I transmit rear end on rather than through the ground plane of the car. Don't laugh — a compass can be very handy. The 80m resonator doesn't care where it lives, but I find 40m is best rear mounted.

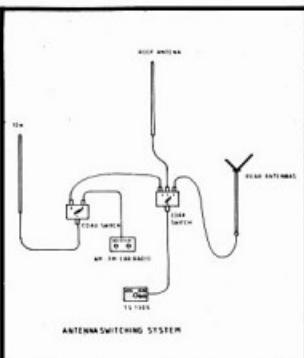
My transceiver is a Kenwood TS130S, which is a magnificent mobile unit, giving outstanding reliable service. Although the noise blanker is excellent I find a degree of extraneous noise still gets through so I use a 50 mm diameter toroid near the transceiver with the RG58 coax fed through the toroid and wound round, four times one side, crossed to the other, then wound four times in the opposite direction. Try it — it works in most cases.

I have read numerous articles on many and varied mobile systems in recent years, including articles from ZE, WI and W4, but as a fanatic totally addicted DXer I prefer individual tuned whips for each band.

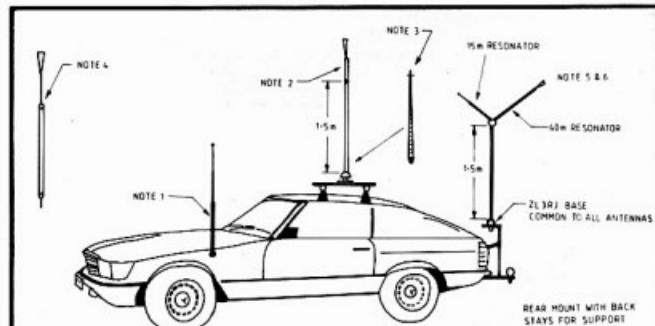
Happy mobiling and good DXing. ■



Inside the fully airconditioned ham shack at VK2DPN. Note the semi-home brew head mike on the passenger seat and 500 ohm tape recorder hand mike mounted in the lower centre of photo. Just visible is the mike switching box containing step up transformer to 50k ohms, to give high output for use with TS130S. Three-position coax switch to front of gear shift switches 10m helical from TS130S to the AM/FM car radio in dashboard. Coax switch mounted to the right of the gear shift switches TS130C between the three HF whips. Power/modulation/VSWR meter (inline) is seen in dashboard, top left. All equipment except TS130S affixed with 3M double-sided adhesive. TS130S bracket affixed with 4 self tapping screws. TS130S uses speaker mounted centre dashboard above central airconditioning vents.



Mobile antenna base manufactured by ZL3RJ. Brass base used at bottom of aluminium whip to mount the whip in the non-standard thread of the base. Note the simplicity of mounting and feeding coax to the base.



NOTES:-

1. 10m HELICAL WHIP FOR LOCAL WORKING SERVICES AM/FM CAR RADIO
2. 20m WHIP MAST IS 12mm OD ALUMINUM TUBE
3. 10m DX HELICAL WHIP WITH TOP LOADING HAT - ALTERNATE WITH 20m IF 10m BAND OPEN
4. 80m RESONATOR CARRIED INSIDE CAR & REPLACES 20m RESONATOR IF REQUIRED FOR SCHEDULE
5. QDQ-BAND REAR WHIP MAST IS 12mm OD ALUMINUM TUBE INSERTED INSIDE NEXT SIZE UP TUBE FOR HALF THE LENGTH AS REINFORCING TO CARRY EXTRA TOP LOAD

# Cocos Keeling – The Forgotten Atoll

Ken and Bett McLachlan  
Box 39, Mooroolbark 3138



Cocos Keeling is comprised of two atolls containing twenty-seven small coral islands which are dotted over a five and a half square mile area and are situated in the Indian Ocean, approximately 2768 km north-west of Perth, Western Australia, and lying on the same latitude as Darwin, which is 3685 km to the east. None of the islands are more than six metres above sea level.

The whole group is in a horseshoe formation. Within this horseshoe is a most spectacular lagoon, approximately 10 km by 16 km and varying to 7 metres in depth. It is a sight to behold with water colours from a very bright aqua to a dark green. Whilst outside in the ocean the depth can be in the order of thousands of metres, virtually the islands' land mass is the top of submerged mountains jutting into the sea.

The main islands are WEST Island, which has the aerodrome and administration offices located on it and is the home of the families and staff of many Australian Government Departments. It is the largest of the group, being about 10 km long and 500 metres wide. It is very densely covered with coconut trees. HOME Island is home to a Malay population of about 300. The day to day costs of the Home Island community are carried by the Clunies Ross estate, with the exception of educational, medical and dental services, which are subsidised by the Australian Government. DIRECTION Island has quite a history dating back to World War 1: the old Cable and Wireless Station located there, caused the defeat of the German cruiser "Emden" by HMAS "Sydney". On the morning of November 9th, 1914, a party from "Emden" landed on Direction Island with the object in mind of wrecking the cable and wireless installations, however before the work of destruction was complete, the "Sydney", in response to an SOS sent from the island, arrived on the scene. In the engagement that followed the "Emden" was set afire and forced to beach on North Keeling Island. The importance of the station also led to attacks in World War 2, when it was damaged in 1942 by shelling from a Japanese warship and also an infrequent air attack, however there was never any attempt to land.

SOUTH, PRISON, HORSBURGH and NORTH KEELING make up the rest of the larger islands and although there are not inhabited, they are visited regularly to harvest the coconuts, as coconuts and their products are the main commercial export. Plant life is plentiful, aided by an average yearly rainfall of 2000 mm (80 inches) and a hot climate with the average temperatures being in a range from 31°C to 21°C, with a relative humidity of around 85 per cent, although the occasional cyclone has caused widespread destruction.

British sea captain William Keeling, of the East India Company, discovered the isolated northern island in 1609, but they remained uninhabited until 1825, when Alexander Hare, an Englishman, settled there. Then in 1827 Captain John Clunies Ross, a Scottish seaman, arrived, bringing with him a number of Malays to make a second settlement. Hare and Clunies Ross both laid claim of ownership to the islands but in 1831 Hare packed up and went to Java, leaving Clunies Ross in sole possession. John Clunies Ross was the first "King of the Cocos", as the heads of the family have become known. He developed a thriving trade with Singapore, dealing in copra and oil. But Clunies Ross feared another country would take the islands, so after many attempts to have England claim them, they were finally annexed in 1857, three years after his death. In 1866, Queen Victoria granted all the land of the islands above high water mark to the Clunies Ross family. John George (John's son) increased plantations, imported machinery for processing the nuts and built mills and workshops. He built up a social structure for the inhabitants and devised a simple legal code and also introduced special Cocos money.

The airstrip on West Island was constructed in the 1940s and enlarged in 1952 with land purchased by the government from the Clunies Ross family to enable the landing and take-off of jet aircraft and, as there is no regular shipping into Cocos there is a heavy reliance on the regular fortnightly charter service operated by the Department of Transport using commercial aircraft from Perth. This flight usually arrives on Wednesdays at about 2.00 a.m. local time and, with the proximity of the housing area to the runway, a convenient alarm is created by the 727 landing which

alerts everyone that the post office will be open, allowing the collection of much awaited mail. Actually these flights cause a little excitement to the island as most everyone trots out to see who has arrived on this flight.

Postal history is also a very interesting part of the islands. During World War 2 and until as recently as 1954 the RAAF post office operated and Australian stamps were used. In 1952 the Malaysian postal administration arrived to open a post office and began using Singapore stamps. These were used until November 23rd, 1955. Meanwhile the RAAF restricted the use of their post office to their own personnel, who enjoyed the privilege of greatly reduced postage rates. The islands became Australian territory and Australian stamps were used once again on November 23rd, 1955. Philately orientated readers may remember the interesting strip of five 22 cent stamps (pictured), which were issued on November 24th, 1980, to commemorate the 25th anniversary of Territorial States under Australian Administration. The stamps feature the Coat of Arms of the five countries that have administered the islands. British Government, 1857-1878; Government of Ceylon, 1878-1886, 1942-1946; The Straits Settlement, 1885-1942; The Colony of Singapore, 1946-1955; and the Australian Government, 1955.

Over the past few years the population has been around 450 people, with the largest population group consisting of descendants of the original Malay people brought to the islands by John Clunies Ross between 1827 and 1831. These "Cocos-Malays" live mainly on Home Island and are Muslim by religious tradition and speak Malay. However, the total population figure has varied largely due to the construction of Australia's high security quarantine station. As the quarantine regulations have always proved a problem in this country due to the stringent laws not allowing animals in without a quarantine period, this new facility should overcome many problems.

If one looks at the map of the Indian Ocean it can be seen that Cocos Keeling is but a small speck in the vast ocean, but how welcome it must appear to our RAAF crews whilst flying on reconnaissance missions of the Indian Ocean. Two members of these crews, Alex VJ5CCT/VK9YA and

Paul VK3CGR/VK9YB, are occasionally heard from Cocos during stopovers from these missions.

In the past most amateur operations from Cocos have been on a short term basis, however of recent times Bill Stevens VK6SW, ex VK9YY, and Chris McPhee VK3BFE, ex VK9YR, are remembered for staying a little longer. Although probably the first to initiate the VK9 Cocos prefix from Direction Island was VK9AJ, who was active in 1956.

Presently, two West Australians are station on Cocos and both have set up amateur stations.

Mike VK9ZYX is very active on six metres and has pleased many with first Cocos contact. Mike is hopeful that before his tour of duty is over he will have reached other parts of the world on six metres and maybe even VK on two metres. Mike is sitting for his CW exam shortly so hopefully we will be hearing him on the HF bands soon, meanwhile he has a five element beam directed to Australia and a transceiver set up for Repeater Channel 4, and it is hoped at least to find a two metre window into VK6.

Frank VK9NYG, ex VK6NCC, was approached by VK6NE of the VK6 DX Chasers Club to assist in a scheme to change VK9 Cocos from being around 51st most wanted country to around the 151st most wanted.

Frank, a Novice, had mainly worked local VK6s with a few Europeans and a handful of American stations thrown in, but it was felt, as his tour of duty was for two years, experience would come with practical operating. As all "paper work", QSLs, etc., would be done from Perth, Frank would be able to enjoy being a rare DX station. Initially it was felt that a novice call could prove to be a handicap due to band and power restrictions, however so far this has proved otherwise. Unfortunately, after setting up the FT101E and vertical antenna, Frank discovered a "small" local problem. Due to a transient group of amateurs causing BCI and other interference problems with their high power transmitters, the neighbours on the island were far from happy, however after a very shaky start operating with about 20 watts to the vertical, Frank won the day and convinced the neighbours and they now accept it as a normal leisure time for Frank.

As the radio telephone on the island can only be operated during working hours (and even then it is not 100 per cent effective), Frank has been able to help out with many weekends messages and urgent traffic via his hobby, including many yachts that have had emergencies in the area. This has impressed the neighbours no end and they are now convinced that it is a worthwhile hobby after all.

Frank's background is Dutch and naturally he has found many Dutch speaking amateurs clamouring for a VK9Y contact. Operations started in December 1980 and by March 1981 Frank was beginning to feel more comfortable in the "pile ups".



and had greatly reduced the European and Australian demand, and by June the contact rate was around 300 per month. By September, with a brand new VFO in operation for split frequency and a TET 3 element beam on loan from friends in America, Frank's operating times became well known and it became reasonably easy to find him on 21 or 28 MHz. About this time Frank's QSO rate shot up to near 700 QSOs per month, although at the beginning of this year it had increased to 80 a day, so he began to have some niggling thoughts "What if the FT101E blows up" and become inoperable? So some spare valves were shipped out from Perth, also an IC730 (on loan from VK6NE), which is being nurtured in a heated cupboard until it is needed. This precautionary measure is taken as no amateur equipment is tropic-proofed to the necessary standard that will withstand the rigours of such high humidity.

Frank and his XYL Ann are enjoying their stay on Cocos but feel it would have been a lot different and maybe not quite so good without amateur radio.

Cres VK9YC resides on Home Island, where the Clunies Ross homestead is situated, and he is operating a FT107 into a ground plane, but he is erecting an 18 metre tower which will take an ATN beam. This he hopes will boost signals to and from his old friends back in G-land, his home QTH. However, problems could arise out of the high humidity and the close proximity to the ocean, coupled with the sea birds habitats that are not conducive to a harmonious relationship for the beam.

#### ACKNOWLEDGMENTS

For the research and supply of material — Lillidale Municipal Library, RAAF Public Relations, Bureau of Meteorology (Victorian Regional Office), Radio Amateurs: Neil VK6NE, Jim VK6RU and Frank VK9NYG.

## Amateur Arthropods

An arthropod has antennae, a tough hide, very little brain, and is very short-sighted — and unfortunately a few have crept into the amateur ranks. You can recognise them on air by the way they repeatedly choose the frequency, time, and mode of their activity in a way which causes maximum inconvenience to other band users.

A few examples are:

### THE 10 METRE TICKS

These either get into the beacon band, or come up on top of the Oscar downlink.

### THE 6 METRE CENTIPEDES

The centipedes use the calling frequencies for long cross-town rag-chews, and are so quick on their buttons that the band can open and close to Scandinavia without their realising what's afoot (or in this case, 100 feet).

### THE 20 METRE TERMITES

These come out of the woodwork all over the place because of harmonics produced when they overdrive their linear amplifiers. Ten metre operators are frequently foxed when they call back to the termite's second harmonic! The termite also does lengthy antenna tune-ups whenever the band is open to Europe.

### THE 40 METRE FRUITFLY

The fruitfly tunes up on top of the nearest RTTY or SSTV signal because he either (a) thinks the signal is a commercial station, not knowing that some amateurs use modes other than Phone, or (b) knows the signal is an amateur station, but believes that amateurs should not use such non-Phone modes! At other times he is heard buzzing about complaining that third party traffic destroys the dignity of amateur radio.

VK2AXI in the Propagator, October 1981.

# Learning the Code — for the First Time

Alan Doble VK3AMD

It always makes me sad when I hear or overhear aspiring operators talking about the difficulties they have in learning CW.

I'm sure the greatest problem is failure to grasp the fundamental concept that the Morse code is only a phonetic form of the same English 26 letters and ten numbers that we had already mastered the sound of by the ripe old age of six.

"A" is a sound, dit dah, not a dot and a dash, and so on. One of the most successful CW teaching exercises in Australia must surely have been the war-time teaching of hundreds of people from all walks of life to become effective 20/25 w.p.m. operators in a very short time.

One place where this was done was in a temporary building on the roof of the Radio School at RMIT Melbourne.

As a help to present-day students, we publish the following extracts from the learning guidelines issued by RMIT at that time.

## ACQUIRING THE CODE

In learning Morse code the beginner should adopt the "sound" method. Usually beginners first memorize the code by the "visual" method, that is, studying from a code card or chart without the aid of a key and buzzer or other sound-producing device, with the result that considerable time is spent in getting the "picture" of dots and dashes out of the mind. When a student memorizes the code by the visual method he pictures each character as being comprised of so many dots or dashes and, when endeavouring to receive signals, he unthinkingly visualizes each dot and dash before writing the characters which are transmitted. Unless the sound method is adopted no appreciable receiving speed can be obtained. This is logical when it is considered that it would be impossible for an operator to receive, say, twenty or more words per minute, if he first had to think of each character as being composed of so many dots and dashes before copying. From the beginning he should learn the sounds — say dit dah means letter A — dah dit dit dit means B, and so on. For preference he should never touch a key till he can read code at 10 words per minute, because keying without a knowledge of what is meant by signal rhythm usually makes a jerky sender. Until he can receive correctly he cannot tell if his own sending is correct.

It can be imagined how difficult ordinary conversation would be if the conversants had to define each word mentally before grasping its meaning; similarly it would be difficult to master the code at any appreciable speed if each transmitted character should first have to be defined as being composed of so many dots and dashes.

The foregoing paragraph should not be construed as meaning that the code cannot be acquired by the student who has

unfortunately memorized it by the visual method. By adopting the sound method this system of learning would gradually be mastered, but a great deal of valuable time would be lost meanwhile. The sound method, which is becoming the universal system of instruction, trains a student in such a manner that, upon hearing a character, he translates it immediately and instinctively into the letter for which it stands. He does this subconsciously to a certain degree, dependent upon the amount of practice involved, and finds he loses time if he tries to visualize dots and dashes; hence the truth of the above statement about trying to avoid the seeing of code illustrated with the old-fashioned A = . — and B = — . . . , etc.

The first step in acquiring the code is to learn the sound of each letter, numeral and character. Learn the code by what is known as "singing it". Start through the letters in a semi-audibly sing-song voice till the tongue can trip off dahs and dits rhythmically at speed till the alphabet can be repeated in 15 seconds without a slip. The alphabet should first be learned, then the numerals and, long after, the punctuations and other characters.

The three chief causes of the student's slow progress in receiving the code are: (1) learning the characters visually, (2) hesitating over a character, thereby losing one or more following characters, and (3) looking back over that which has been copied, thereby momentarily disrupting concentration.

After the characters have been memorized by the beginner, that is, after the beginner can send them without referring to the groups or a code chart, he should begin receiving at a speed of 5 words (25 characters) a minute. It should be kept in mind that when a speed of 5 words per minute is referred to (25 characters or letters on an average), the sender should send each character at a constant speed of 25 words per minute and to leave long gaps between the letters to make the 5 words per minute. If a letter is missed do not interrupt the sender. Copy what you can and after the transmission is finished check the copied characters to ascertain those which require more practice. In a few hours the dits will be readily distinguished from the dahs, from then on progress can be made only by copying at a speed slightly faster than you can accurately receive, and this is done by the process of reducing the time gaps between the letters.

The code cannot be acquired in a day and because progress is seemingly slow many beginners become discouraged in a short time. Determination, concentration and consistent application are the requirements for acquiring the code in a minimum length of time.

The important thing to remember is to get the rhythmic sound of letters sent at the rate of 25 w.p.m. and work on them with ever increasing gaps between letters till 25 words are actually sent in one minute.

Other difficulties encountered by code students may be summed up as follows:

(1) Getting rid of the visual picture of the characters as being composed of dots and dashes.

(2) Trouble with a few characters. This indicates a lack of practice on these characters.

(3) Consciousness of writing. Forget that you are writing — write in your natural hand, confining your thoughts to the sound of the signals.

(4) Printing. Do not print any letters or characters until you can receive at least ten words per minute. A beginner has enough to think of in receiving without mastering another subject while receiving.

(5) Hesitating over missed letters. When a letter is missed forget it. By attempting to recall it to mind several characters will probably be missed.

(6) Wandering of mind. This denotes weak willpower or over-concentration. Usually it is better to leave Morse work alone for 5 minutes and go for a brisk walk in the open.

(7) Over-concentration. When you become tense due to over-concentration, or "hard thinking", completely relax for a few seconds and begin again.

(8) Fatigue. When the dots and dashes seem undistinguishable and several characters are lost, it is usually because the student is mentally fatigued. In such condition you should completely relax for a few seconds or do as suggested at the end of (6). No form of work is more exacting than that of copying code for an appreciable length of time. As more hours are spent in receiving it will be found that the mind will gradually become accustomed to its new task and, after more and more receiving practice, the student can copy unbrokenly over a long period of time.

It is in the early stages of code practice that future habits are formed and the student should therefore have just one idea continually in mind — ACCURACY. Great care should be exercised to have every dot, every dash, every letter, as perfect as it is possible to make it.

The student who lays a solid foundation of accuracy in code transmission will have a better foundation upon which other things, such as speed, can be built later on. A good rule to follow is to make each dot short and sharp, but firm, and each dash long enough — the length of three dots — that it will be impossible to mistake one for the other. ■

# FORWARD BIAS

## VK1 DIVISION

### ANNUAL GENERAL MEETING

In accordance with the VK1 Division Constitution the Annual General Meeting of the Division will be held on Monday, 22nd February, 1982, at 8 p.m. in the Studio Room, Griffen Centre, Bunda Street, Canberra City. The business of this meeting will be:

- To receive from the President, Auditor, Federal Councillor, Public Officer and other officers reports on the Division's transactions and business during the 1981 financial year.
- To elect the officers and committee members for 1982.
- To elect a Federal Councillor for 1982.
- To appoint an Auditor for 1982 and to determine his remuneration, if any.

Nominations of persons as candidates for election as officers of the Division or as committee members must be in writing, signed by two members of the Division who are holders of current Australian amateur transmitting licences and indicate in writing the acceptance of the nominee of his/her nomination for the position.

The nomination is to be delivered to the Public Officer at least ten clear days before the date of the Annual General Meeting — that is by Friday, 12th February, 1982.

Nomination forms for intending candidates for election will be available at the January meeting on Monday, 18th January, 1982.

The positions for which nominations for election will be accepted are President, two Vice-Presidents, Secretary, Treasurer, three Committee members, Federal Councillor. C. T. Vidler, Hon. Secretary, VK1 Division.

Council felt that the presentation of Federal WIA tapes on non-WIA broadcasts could give listeners a false impression that these broadcasts were conducted by sections of the WIA. Council has requested that Federal WIA tapes are supplied in future to WIA broadcasts only.

Jeff Pages VK2BYY, the Broadcast Officer, reported that the engineering console hardware was complete and the control software was being debugged. The Dural audio/control systems is controlled by a 2650 microprocessor which has reduced the quantity and cost of hardware and enhanced the control system flexibility. An intermittent oscillator fault in the Dural channel 7000 repeater was finally traced and cured.

Athol Tilley VK2BAD reported that the 5th Conference of Clubs could not proceed as only nine clubs were present, a quorum being 12. An informal meeting discussed the previously circulated agenda.

### DECEMBER COUNCIL REPORT

At the December meeting of Divisional Council, Membership Secretary Steve Pail VK2VHP reported that 294 new members joined the Division in 1981, 171 failing to renew. For this month, 41 applications that were a direct result of the membership drive were received. (Approximately a 2 per cent success rate.) 15 normal applications were also received.

Broadcast Officer Jeff Pages VK2BYY reported that the engineering console had been installed at Dural. Work was continuing to overcome some RF breakthrough problems and Jeff felt they would be shortly overcome. Work was proceeding on the 160 metre transmitter and the second Collins HF SSB transmitter. A 70 cm beacon is under construction. Sue Brown VK2BSB undertook the design of a new QSL card for VK2WI, which will be used for the acknowledgement of beacon reception reports.

Federal Councillor Tim Mills VK2ZTM reported that there was a delay on UHF repeater application approvals as they must be processed by DOC in Melbourne. Outstanding UHF repeater applications will be pursued through the local office of DOC. The Federal Councillor for 1982 is Tim Mills and the Alternate Federal Councillor is Wally Watkins VK2DEW.

Steve Pail VK2VHP gave details of a building in Parramatta that appeared suitable for the relocation of the Divisional office. A full report of his investigation of suitable premises and recommendations will be presented to members for their consideration at the AGM on the 27th of March, 1982.

Morse code instruction classes will continue at the WIC in 1982. The fee for a full year of personal tuition is \$25 and any member interested in this course should contact the Divisional office.

Council discussed the requirements of the DOC regulations concerning the operation of amateur radio stations, especially Section 6.9a, which deals with the operation of a station by a person who does not hold a certificate appropriate to the trans-

missions. An example is that a limited licensee cannot operate on HF unless a suitably licensed person is also in attendance. All stations operated by the Institute or under its control, i.e. broadcasts, WICEN, etc., must be operated in accordance with the regulations.

A proposal that the Division conduct a community FM broadcast station was considered but it was felt that this proposal was not practicable.

### ANNUAL GENERAL MEETING

As previously mentioned, the Annual General Meeting of the NSW Division of the WIA will be held on the 27th of March, 1982. Formal notice will be posted to all VK2 members in March. Do you have an agenda item for discussion at this meeting? Please note that no business can be discussed and voted on unless all members receive notice of such business (Article 31). Perhaps you wish to stand for election to Council. Note that any Ordinary (i.e. Full) member may nominate for election (Article 48).

The AGM is where Council reports on its management of the Division for the previous 12 months. An important agenda item is the presentation of a report concerning the relocation of the Divisional office to Parramatta. Informed discussion and voting can only occur if you, as members, make the effort to attend and participate on the 27th of March. If you are unable to attend, you can lodge a proxy (Article 39 to 43).

Note that the closing date for AGM agenda items and nominations for election to Council is 10 a.m., Thursday, 25th February, 1982.

### GOSFORD FIELD DAY

As mentioned in the December Mini-Bulletin, the 25th Gosford Field Day will be held on Sunday, 21st of February, 1982, at the Gosford Showgrounds, Showground Road, Gosford. A programme can be obtained from the Divisional office or from the CCAR, PO Box 238, Gosford, NSW 2250. Disposal items for sale must be booked in advance. Contact Bill Smith VK2TS, RMB 4525, Gosford 2250, for forms and lot numbers. (Phone (043) 74 1207 AH.)

### URUNGA CONVENTION

Yes, once again the Urunga Convention will be held over the Easter Weekend of the 9th to 11th of April, 1982. Details should be in the March Mini-Bulletin.

### THIS MONTH'S EDITOR

Do you detect a change in style for this month's Mini-Bulletin? Regular editor Susan Brown VK2BSB is this moment (6/1/81) recovering from an appendix operation, so for this month I am in charge. Fear not, as next month should see her delicate touch on the typewriter keys, even if I have to drive her back to work! Hi!

### COMING EVENTS

21st February (Sunday): Gosford Field Day, Showground Road, Gosford. Disposal lot numbers from Bill Smith VK2TS at RMB 4525, Gosford, or phone (043) 74 1207 AH.

25th February (Thursdays), 10 a.m.: Close of agenda for Divisional AGM and of nominations for Council 1982-83.

21st March (Sunday): Liverpool Field Day.

27th March (Saturday), 10 a.m.: Annual General Meeting of NSW Division.

9th-11th April: Urunga Convention.

Members and clubs are invited to submit news for inclusion in this column. News for April AR must reach Box 123, St. Leonards 2065, by 27th February.

Athol Tilley VK2BAD. ■

## VK4 WIA NOTES

### 1982 COUNCIL

Nine members have nominated for Council for 1982, hence no election is required. Where are the other people wanting to put something back into their hobby? The nominations are from Guy VK4ZXZ, Ken VK4KD, John VK4QA, Jack VK4AGY, Rod VK4NBD/YIC, Claude VK4UX, Fred VK4AFJ, Harold VK4HB and Ross VK4KRM.

The AGM will be held on 19th February in the rooms at the corner of Love and Water Streets, Spring Hill, as notified in last month's QTC.

### EDUCATION

The Division has prepared updated education kits for intending licensees and "up-graders". Information has now been sent to all affiliated clubs for their use (see also QTC). A future part of these kits will be a history of our hobby in Queensland — do you have anything to contribute to this? If so, please contact the Divisional Historian, Peter VK4PJ (QTHR), as soon as possible.

### FEDERAL COUNCILLOR

Council has received with regret the resignation of Alex McDonald VK4TE from the position of VK4 Federal Councillor. Alex has carried out the demanding duties of this position for a number of years as well as contributing to other areas of Divisional and Federal activity. The absence of such an able, willing and dedicated member of

Council will leave a gap that will be difficult to fill. Thank you, Alex (and Sue), for your efforts, dedication and support.

The new VK4 Federal Councillor will be David VK4DT.

### FEDERAL CONVENTION 1982

Council has formulated motions to be presented to this year's Convention and these should have by now been circulated to affiliated clubs as part of the preparation for the Radio Club Workshop. It is almost too late for additional input from members. Listen to the Sunday News for "updates" on motions, then let Council know your views.

### RADIO CLUB WORKSHOP 1982

Council has approved a "live-in" style workshop this year so that more ground can be covered in greater depth. The workshop this year will concentrate on formulating broad policies on matters of concern to us as amateurs, e.g. third party, licensing structures. Sample policies have been sent to your club so make sure that your delegate is as widely and deeply briefed on your views as possible. Club delegates should call into the weekly Club Net (Tuesdays 1930K on 3605 kHz).

### DARLING DOWNS REPEATER VK4RDD

This repeater, sited on the Bunya mountains, has recently changed frequencies to an input of 146.150 MHz and an output of 146.750 MHz. ■

## QSP

### NEW CELLS FOR OLD

In what seems to be a repeat of what we used to do in the war with carbon zinc cells, David Foster, writing in "Radio Communication", tells a new and interesting story about the rejuvenation of old nicads. The procedure during the war days was to drill a hole in the cell top and pour in some glycerine. This seemed to give the cell a new lease of life as it restored the water balance somehow and enabled old cells to be used again. Remember, it was nearly impossible to buy new ones. David Foster G3KQR, suggested drilling a tiny (No. 55 drill) hole through the gassing vent, which he tells us is under the positive terminal, sometimes obscured by a brass soldering terminal. He advises shallow penetration of the vent. He says that this is made of synthetic rubber which is sandwiched between the "top hat" of the positive terminal and the top disc, the two metal portions being spot welded together. He recommends access to the cell by use of a hypodermic needle and syringe thrust through the top vertically, through the rubber into the cell. He suggests that alternate suction and pressure with distilled water used in the syringe will do the trick. He says that about 3 ml of water is needed for the rejuvenation of the small nicads, although it is not clear from the article exactly to what size he refers. The needle "track", he explains, will heal as the hypodermic is withdrawn. He claims he has treated hundreds of cells this way with a high percentage of return to life. Might be worth a try! —Westlakes Newsletter.

## THE WIA BOOK

### Vol. 1

## A Slight Delay because of holidays

## WIA FEDERAL DIRECTORY

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Mr. K. C. Seddon VK3ACCS, Member.  
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VK3 — Mr. A. R. Noble VK3BBM.

VK4 — Mr. A. R. F. McDonald VK4TE.

VK5 — Mrs. J. M. Warrington VK5ANW.

VK6 — Mr. N. R. Penfold VK5NE.

VK7 — Mr. P. Fudge VK7BO.

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VK3 — Mr. M. A. Bonacci VK3YZO.

VK4 — Mr. D. T. Laulie VK4DT.

VK5 — Mr. W. M. H. Wardrop VK5AWM.

VK6 — Mr. B. Heldland-Thomas VK6DO.

VK7 — Mr. M. J. Hennessy VK7MC.

# AMSAT AUSTRALIA



R. C. Arnold VK3ZBB

Some months ago AMSAT requested its members to complete a questionnaire to obtain opinions on the future satellite programme. By a majority of 3 to 1 respondents favoured high altitude orbits with higher frequency transponders. However, there was strong advocacy for some Mode A activity, particularly to encourage newcomers.

AMSAT is appreciative of the support of members and for the constructive comment received via the questionnaires.

The Australian AMSAT Net conducted by Chas Robinson VK3ACR commences at 1000Z each Sunday. Due to propagation problems the net has switched to 7064 kHz for the summer period and will revert to 3680 kHz about the end of April.

In December AR I credited Colin VK5SHI with receiving the first signals from UOSAT. This was incorrect and Colin has asked me to give credit where it is due with the following correction: "Following the monitoring by many amateurs of the launch of UOSAT Graham VK5AGR and Glenn VK5ZCF elected to monitor orbits 2 and 3 in the early hours of the morning. Their reward was to hear a steady carrier running a 1200 Hz tone. The following afternoon Graham, Glenn and Terry VK5GU monitored orbit 11 and recorded 1200 band ASCII. Subsequently Graham and Terry (who were fortunate to be on leave) recorded most orbits during the first two weeks of UOSAT's life for the benefit of other local amateurs."

Colin has sent a most interesting resume of his work in decoding the 1200 band ASCII. I will try to include this in my notes at some future date, meanwhile I must give the Editor every chance to continue the reprint of the UOSAT Technical Handbook (with thanks to AMSAT-UK).

December 17th saw the long awaited launch of additional Russian amateur satellites. Three were expected but our eyes opened in amazement as we counted six sending out their telemetry from the first orbit. These satellites are of the RS series (Mode A) and numbered RS3 to 8 inclusive. Each satellite has a slightly different set of parameters which will cause them to catch up with and pass each other as time passes.

The parameters as at 1st January, 1982, are:

RS No.	Time per Orbit (mins.)	Angular Increment	*W	Apogee	Perigee	Inclination
3	118.52025	29.75679	1688	1577	82.9606	
4	119.39679	29.97605	1691.5	1640.5	82.9566	
5	119.55572	30.01583	1689.9	1665.2	82.9590	
6	118.71899	29.80655	1690.5	1582.5	82.9592	
7	119.19576	29.92619	1688.9	1624.2	82.9568	
8	119.76628	30.02853	1693.4	1657.1	82.9568	

Each of the satellites has at least one beacon transmitting the binary derived format series similar to RS1 and 2. There are 35 parameters despite the seven letter prefixes, the others of which can be identified with an additional "dit" in front of the K, D, O, etc., making them sound like different letters, i.e. "D" would sound like "L", etc. The actual format can be the same whether the service channel is on or not, thus no prefix, a straight K, D, O, G, U, S, W. sequence would indicate things

are quiet, apart from the beacon, while "EK", "ED", "EO", etc., would be set when all is going.

Thus with activity the prefix goes to E, the "I" pre-prefix can go to "S", e.g. "IK" to "SK", "ED" to "SD", etc., the normal non-active "N" prefix to "R", the normal "A" to "U" and the normal "M" to "W", all by the extra "dit" of information. The satellite is identified during each TLM sequence.

## RS SATELLITE CHANNEL 1

Letter	Content	Calculation
K	Output Power Transponder	$0.2 \times n^2 = mW$
D	Voltage of Source	$n \times 0.2$ volts
O	Charge Current	$20 \times (100 - n)$ mA
G	?	
U	?	
S	Temp. Regulator	$T = n^\circ C$
W	Temp. 10m Tx	$T = n^\circ C$

## CHANNEL 2 Prefix "I" or "S" (active)

Letter	Content	Calculation
K	Output Power Transponder	$0.2 \times n^2 = mW$
D	Zero Adjust TLM	A figure
O	Beacon Output Power	$0.2 \times n = mW$
G	Sensitivity Transponder	$n = -dB$ (reg)
U	"S" Meter 1st Rx	$0.1 \times (n - 10) = "S"$ units
S	"S" Meter Robot Rx	$0.1 \times (n - 10) = "S"$ units
W	"S" Meter 2nd Rx	$0.1 \times (n - 10) = "S"$ units

## CHANNEL 3 Prefix "N" or "R" (active)

Letter	Content	Calculation
K	Output Power Transponder	$0.2 \times n^2 = mW$
D	?	
O	?	
G	?	
U	?	
S	?	
W	?	

## CHANNEL 4 Prefix "A" or "U" (active)

Letter	Content	Calculation
K	Output Power Transponder	$0.2 \times n^2 = mW$
D	9V Transponder Line	$0.1 \times n = V$
O	7.5V Transponder Line	$0.1 \times n = V$
G	9V 1st Stabiliser	$0.1 \times n = V$
U	7.5V 1st Stabiliser	$0.1 \times n = V$
S	9V 2nd Stabiliser	$0.1 \times n = V$
W	7.5V 2nd Stabiliser	$0.1 \times n = V$

## CHANNEL 5 Prefix "M" or "W" (active)

Letter	Content	Calculation
K	Output Power Transponder	$0.2 \times n^2 = mW$
D	On Board Log	$n = \text{No. of QSOs} \pm 1$
O	Heater Control	$n \times 0.1 = \text{watts}$
G	Robot Input Power	$n \times 20 = mW$
U	Service Channel Power	$n = -dB$
S	Sensitivity of Robot	$n = -dB$
W	Sensitivity of Service Rx	$n = -dB$

In addition to the TLM, the satellites have a transponder and/or "Robot", a number of which were operational at new year — the time of preparing these notes.

The "Robot" will call CQ on (say) 29.330 MHz and a station needing a QSO should call on (say) 145.830 MHz as follows: "RS0 de (your call) AR". The response

will come back on 29.330 MHz "(Your call) de RS0 QSO Nr 001 (your call) de RS0 QSO Nr 001 OP ROBOT T U FR QSO 73 SK". The QSO number will be serialised and of course the satellite number (RS0) will be that of the satellite concerned.

The frequencies of operation are (data as at 3/1/82):—

RS	Beacon	Transponder		Robot	
		Up	Down	Up	Down
3	29.320	—	—	145.820	29.320
4	29.360	145.86-145.90	29.36-29.40	—	—
	29.452				
5	29.330	—	—	145.826	29.330
	29.450				
6	29.410	145.91-145.95	29.41-29.45	—	—
	29.500				
7	29.340	—	—	145.835	29.340
	29.460				
8	29.500	145.96-146.00	29.46-29.50	—	—

PREDICTIONS					
Date	A08	U09			
1982	Eqx. GMT	Eqx. °W	Eqx. GMT	Eqx. °W	
February 1	0043	79	0048	146	
February 7	0110	85	0117	153	
February 14	0141	94	0133	157	
February 21	0030	76	0013	137	
February 28	0101	84	0027	139	

Any information to update these notes would be appreciated by Chas VK3ACR or myself.

Good news for a Phase IIIB launch on 6th July, 1982. Ariane LV L04 was successfully launched on 14th December, en-

abling MARECS-A to be placed in geosynchronous orbit and thus paving the way for L5 and L6 to be on time. L6 will carry Phase IIIB.

Acknowledgements to:— AMSAT-UK, W6CG, VK3ACR, VK5HI, VK7PF.

#### Reproduced from UOSAT Technical Handbook — and Overleaf.

STATUS POINTS	
01	145 MHZ GENERAL DATA BEACON
02	435 MHZ ENGINEERING DATA BEACON
03	PRIMARY SPACECRAFT COMPUTER
04	CCD CAMERA MODULE
05	RADIATION DETECTOR - A
06	MAGNETOMETER EXPT.
07	7 MHZ BEACON EXPT.
08	14 MHZ BEACON EXPT.
09	21 MHZ BEACON EXPT.
10	28 MHZ BEACON EXPT.
11	2.4 GHZ BEACON EXPT.
12	10.47 GHZ BEACON EXPT.
13	140 MHZ COMMAND RX
14	435 MHZ COMMAND RX
15	STATUS CALIBRATE
16	HCR STATUS
17	H.F. BEACONS EXPT. SYNTHESISERS
18	TELECOMMAND DECODER STATUS
19	MAGNETOTORQUE
20	PRIMARY S/C COMPUTER BLOCK LOAD PORT
21	SECONDARY S/C COMPUTER DATA D/P
22	SECONDARY S/C COMPUTER CLOCK
23	SECONDARY S/C COMPUTER PROCESSOR
24	SECONDARY S/C COMPUTER POWER-DOWN
25	14MHZ H.F. BEACON SYNTHESISER LOCK
26	21MHZ H.F. BEACON SYNTHESISER LOCK
27	28MHZ H.F. BEACON SYNTHESISER LOCK
28	RADIATION DETECTOR - B
29	14P MASS UNLOADING CONFIGURATION
30	SPEECH SYNTHESISER POWER
31	VISUAL BASIC DISPLAY PORT
32	GRAVITY GRADIENT BODY MOTOR POWER
33	SECONDARY S/C COMPUTER POWER
34	HF BEACONS EXPT. POWER
35	NAVIGATION ANGLOMETRE POWER
36	S/C COMPUTER MEMORY ERROR B11 -1
37	S/C COMPUTER MEMORY ERROR B11 -2
38	S/C COMPUTER MEMORY ERROR B11 -3
39	STATUS CALIBRATE
40	PRIMARY S/C COMPUTER DATA D/R D/P
41	GRAVITY GRADIENT BODY MOTOR
42	MAGNETOTORQUE POWER
43	MAGNETOMETER EXPT.
44	NAVIGATION MAGNETOTORQUE
45	GRAVITY GRADIENT BODY MOTOR

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FORWARD/REVERSE
FORWARD/REVERSE
CALIBRATE
SAFE/ARM
SAFE/ARM

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## QSP

### TECHNICAL ARTICLES

Some time ago we were told that "Amateur Radio" "didn't contain much technical stuff of any consequence", and, as usual, we set about to reply. "We can only print what the boys send in".

Looking back over these remarks, the Magazine Committee decided to do something about this old question which is ever now, and, with the help of one of our advertisers, who appreciates our efforts and support, we were able to offer some reasonably sensible print that the first technical article published in the September, October and November issues. We are anxious to see that such articles materialise, and would suggest that, if you can't write such an article, perhaps you could approach some scientifically-minded person to help. "Amateur Radio" along. We have compiled a list of likely people in Melbourne — University professors, laboratory chiefs and assistants, factory engineers and experimenters — and think that other States might do the same.

You would not be seeking an article for an unknown magazine. "Amateur Radio" is just about two years old now, and does occupy a forward position amongst "ham literature" in Australia.

Remember that oft-repeated statement that "Amateur Radio" is a true reflection of the amateur experimental mind, as all we print finds its source in the "ham" fraternity.

So, if you don't see just what you want in "Amateur Radio", it's up to you to remedy this state of affairs.

Reprinted from *AR August 1953*.

We again appeal for good technical articles for AR if we may do so.

**The WIA is in business for  
more members. Please help.**

## TELEMETRY SENSOR ALLOCATION

CHANNEL	PARAMETER	RANGE	Cal. Equation
*****	*****	*****	*****
00	SECONDARY S/C COMPUTER (F100L)	0 - 1A	I = 1.2W mA 10.125A < I < 1A
01	SOLAR ARRAY CURRENT +X	0 - 2A	I = 2A
02	BATTERY M/L VOLTAGE	0 - 10V	V = M/100 +11.001
03	RADIATION DETECTOR A D/P	0 - 5V	Count = 40M +11.044
04	RADIATION DETECTOR B D/P	0 - 5V	Count = 40M +11.044
05	MAGNETOMETER EXPT. NX-COURSE	0 - 5V	U = M/200 +11.011
06	MAGNETOMETER EXPT. NY-COURSE	0 - 5V	U = M/200 +11.011
07	MAGNETOMETER EXPT. NZ-COURSE	0 - 5V	U = M/200 +11.011
08	BATTERY PACK-A TEMPERATURE	-30 10 +50°C	Temp = 1474-N/5 +11.011 Degrees C
09	SPACECRAFT FACET TEMPERATURE +X	-20 10 +50°C	Temp = 1474-N/5 +11.011 Degrees C
10	VISUAL DISPLAY EXPT & LCD CURRENT	0 - 1A	I = 2A+11-301 mA 10.125A < I < 1A
11	SOLAR ARRAY CURRENT -X	0 - 2A	I = 1.5W mA
2.4 GHz BEACON EXPT. POWER D/P	0 - 2000mW	Px = 97910.633 mW	
12	RADIATION DETECTORS EXPT. CELT VOLTS	0 - 1000mV	Vx = M+1155
13	RADIATION DETECTORS LAPT CURRENT	0 - 250 mA	Ix = 200/8 +10.983 mA
14	MAGNETOMETER EXPT. HX-FINE	0 - 5V	Ux = M/200 +11.011
15	MAGNETOMETER EXPT. HY-FINE	0 - 5V	Ux = M/200 +11.011
16	MAGNETOMETER EXPT. HZ-FINE	0 - 5V	Ux = M/200 +11.011
17	BATTERY PACK-B TEMPERATURE	-30 10 +50°C	Temp = 1474-N/5 +11.011 Degrees C
18	SPACECRAFT FACET TEMPERATURE -X	-30 10 +50°C	Temp = 1474-N/5 +11.011 Degrees C
19	SPACECRAFT COMPUTER CURRENT	0 - 1A	I = 1.2A+11-251 mA 10.125A < I < 1A
20	SOLAR ARRAY CURRENT -X	0 - 2A	I = 1.5W mA
21	BATTERY / BCR +14V BUS	0 - 20V	Vx = M/30 +11.058
22	SUN SENSOR Z AXIS	0 - 5V	Ux = M/200 +11.011
24	10.4 GHz BEACON EXPT. CURRENT	0 - 250 mA	(M-E)/4 +0.97
25	MAGNETOMETER EXPT. TEMPERATURE	-30 10 +50°C	Temp = 1474-N/5 +11.011 Degrees C.
26	MAGNETOMETER EXPT. CURRENT	0 - 250 mA	(M-E)/0.9945
27	TELECOMMUNICATION RECEIVED CURRENT	0 - 250 mA	Ix = 1812/8 +10.9521 mA
28	MODULE BOX ASST. TEMPERATURE +X1	-30 10 +50°C	Temp = 1474-N/5 +11.011 Degrees C
29	SPACECRAFT FACET TEMPERATURE +Y	-30 10 +50°C	Temp = 1474-N/5 +11.011 Degrees C
30	BATTERY CHARGE CURRENT	0 to +5A	I = 38 mA
31	SOLAR ARRAY CURRENT -Y	0 - 2A	I = 1.5W mA
32	POWER CONDITIONING MODULE +10V	0 - 20V	Vx = M/46 +10.751
33	TELEMETRY SYSTEM CURRENT	0 - 20 mA	I = 1.2A+11/30 +11.084 mA
34	2.4 GHz DATA BEACON EXPT. CURRENT	0 - 250 mA	(M-E)/11-111 +11.0271 mA
35	145 MHZ DATA BEACON POWER D/P	0 - 2000mW	Px = 21211.67
36	145 MHZ DATA BEACON CURRENT	0 - 250 mA	Ix = (M-E)/4 +1.014
37	145 MHZ DATA BEACON TEMPERATURE	-30 10 +50°C	Temp = 1474-N/5 +11.011 Degrees C
38	MODULE BOX ASST. TEMPERATURE -X1	-30 10 +50°C	Temp = 1474-N/5 +11.011 Degrees C
39	SPACECRAFT FACET TEMPERATURE -Y	-30 10 +50°C	Temp = 1474-N/5 +11.011 Degrees C
40	+14V LINE CURRENT	0 - 5A	I = 2.8W mA
+5V LINE CURRENT	0 - 5A	I = 1.2B/10-501 mA 10.075A < I < 1A	
42	POWER CONDITIONING MODULE +5V	0 - 10V	Vx = 2/300 +11.121
43	SUN SENSOR -Z AXIS	0 - 5V	Ux = M/200 +11.011
44	HF BEACONS EXPT. CURRENT	0 - 250 mA	I = (M-261/3 +1.038 mA
45	435 MHZ DATA BEACON POWER D/P	0 - 2000mW	Px = (M-1021)/1.792
46	435 MHZ DATA BEACON CURRENT	0 - 250 mA	Ix = (M-341/3 +1.053 mA
47	435 MHZ BEACON TEMPERATURE	-30 10 +50°C	Temp = 1474-N/5 +11.011 Degrees C
48	MODULE BOX ASST. TEMPERATURE +Y1	-30 10 +50°C	Temp = 1474-N/5 +11.011 Degrees C
49	SPACECRAFT FACET TEMPERATURE +Z	-30 10 +50°C	Temp = 1474-N/5 +11.011 Degrees C
50	+10V LINE CURRENT	0 - 5A	I = 3W mA
-10V LINE CURRENT	0 - 5A	I = 1.3E+1001 mA	
52	POWER CONDITIONING MODULE -10V	0 - -20V	Vx = 0.0158W - 0.0224H +1 W of +10V line
53	NAVIGATION MAGNETOMETER X-AXIS	0 - 5V	Ux = M/200 +11.011
54	NAVIGATION MAGNETOMETER Y-AXIS	0 - 5V	Ux = M/200 +11.011
55	NAVIGATION MAGNETOMETER Z-AXIS	0 - 5V	Ux = M/200 +11.011
56	SPEECH SYNTHESIZER CURRENT	0 - 250 mA	I = 1.1E-16/10 +1.009 mA
57	CCD IMAGER TEMPERATURE	-30 10 +50°C	Temp = 1474-N/5 +11.011 Degrees C
58	MODULE BOX ASST. TEMPERATURE -Y1	-30 10 +50°C	Temp = 1474-N/5 +11.011 Degrees C
59	SPACECRAFT FACET TEMPERATURE -Z	-30 10 +50°C	Temp = 1474-N/5 +11.011 Degrees C

Phased Vertical  
Antennas

Two identical vertical antennas can be installed as a phased array. When excited directly by RF energy, gain is achieved by control of the directional pattern. This control results in added gain by sharpening lobe patterns and concentrating the radiated energy at very low angles. Signal flutter is reduced and reception is vastly improved. Phased array will reduce installation height requirements and still maintain low angle radiation. Most effective spacing for a bi-directional array is half wavelength.

When two verticals are excited in phase the radiation is broadside to the plane of the verticals, offering a gain of 3.8 dB and bi-directional characteristics. Side attenuation of 30 dB gives good signal reduction for undesired direction.

When excited out of phase, these same verticals give an end-fire or bi-directional pattern in the direction through the plane of the verticals. Signals are then nulled out in the broadside directions. More gain is exhibited by the broadside pattern over the end-fire which offers a wider frontal pattern. Forward gain is 2.3 dB and side attenuation is 20 dB. Both arrangements offer advantages over a single vertical since either phasing combination exhibits noticeable signal gain with side attenuation of undesired signals. Added gain and low-angle vertical directivity are features of the phased array.

Phased verticals may be spaced either one-quarter wave or one-half wave, resulting in variations in gain and directional characteristics. The nulls of the phased array are very sharp. When both feedlines to the verticals are the same length, the currents arrive at the base of each antenna at the same time, giving the in-phase broadside pattern. When one feedline is a half wavelength longer than the other, the current arrives at the base of one antenna before the other, giving the out-of-phase end-fire patterns.—From "Lyrebird" ("Hy-Gain Engineering Report").

## QSP

## MARCONI SCHOOL CLOSES AFTER 65 YEARS

The Marconi School of Wireless, having trained thousands of Australian broadcast operators since the 1920s, has closed. The school, part of AWA, accepted its first students on August 13, 1913, under the name of The Marconi and Telefunken College of Telegraphy; it became the Marconi School of Wireless in 1914. The school has mainly served the needs of marine operators, but from the introduction of radio in the 1920s till last year has provided training for broadcast operators. For most of its history it was the major training facility for operators and for many years the only one. The school has seen the entire history of Australian broadcasting from the first days of the sealed-set "subscription radio" through to colour television and remote area television via satellite. During the 1950s the school saw its peak with courses in every State and more than 1300 students enrolled. The success of the school over the years owes much to its manager, Ces Bardwell, one of its early graduates, who became an instructor in 1939 and manager in 1942.—Video-Tronics.

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# VHF-UHF AN EXPANDING WORLD

Eric Jamieson, VK5LP  
Forreston, S.A. 5233

## VHF/UHF BEACONS

### Freq. Cell Sign Location

For 28 MHz beacons refer October 1981,  
but add the following to that list:-

28.216	VE2TEN	— Quebec
50.005	H44HIR	— Honiara
50.005	VSSVHF	— Natal, South Africa *
50.008	JA21GY	— Mie
50.020	GB3SIX	— Anglesey
50.023	HH2PR	— Haiti
50.025	6Y5RC	— Jamaica
50.035	ZB2VHF	— Gibraltar
50.038	HC1JX	— Quito
50.038	FY7THF	— French Guiana
50.040	WA8MHZ	— San Diego
50.048	VE6ARC	— Alberta
50.050	ZS3E	— South Africa
50.062	PY2AA	— São Paulo †
50.070	YV2Z	— Caracas
50.080	TI2NA	— Costa Rica
50.088	VE1SIX	— New Brunswick
50.100	KH6EQI	— Pearl Harbour
50.498	5B4CY	— Cyprus
51.022	ZL1UHF	— Auckland
52.013	P29SIX	— New Guinea
52.150	VK5KK	— Arthurton
52.200	VKBVF	— Darwin
52.250	ZL2VHM	— Palmerston North
52.300	VK6RTV	— Perth
52.320	VK6RTT	— Carnarvon
52.330	VK3RGG	— Geelong
52.350	VK6RTU	— Kalgoorlie
52.370	VK7RST	— Hobart
52.400	VK7RNT	— Launceston
52.420	VK2WI	— Sydney
52.425	VK2RGB	— Gunnedah
52.435	VK3RMV	— Hamilton
52.440	VK4RTL	— Townsville
52.510	ZL2MFH	— Mt. Climie
53.000	VK5VF	— Mount Lofty §
144.400	VK4RTT	— Mt. Mowbullan
144.420	VK2WI	— Sydney
144.475	VK1RTA	— Canberra
144.550	VK5RSE	— Mt. Gambier
144.600	VK6RTT	— Carnarvon
144.700	VK3RTG	— Vermont
144.800	VK5VF	— Mt. Lofty
144.900	VK7RTX	— Ulverstone
145.000	VK6RTV	— Perth
147.400	VK2RCW	— Sydney
432.410	VK6RTT	— Carnarvon
432.440	VK4RBB	— Brisbane
432.450	VK3RMB	— Mt. Bunningyong

\* Indicates a new beacon listing.

† Indicates a frequency correction.

§ Indicates this beacon has resumed operations again.

On the subject of beacons, a letter from Lindsay VK5VHF reports he copied the VS5VHF in East Natal, South Africa, on 28.2025 MHz, with the following details: "V V de VS5VHF beacon on 28.2025, 50.005 and 144.925 MHz V V de VS5VHF

please QSL to ZS5STR or phone 031 75 3125 . . . etc."

This confirms my listing of ZS5VHF on 28.2025 in the October 1981 list, and the 6 metre beacon has now been listed with this issue.

Lindsay also confirms hearing VE2TEN on 28.216 MHz on 9/11/81, this being a propagation study beacon in Chaudière, Québec, and to QSL via VE2FIT. He also refers to a query from VK3DGQ asking for information re a beacon signing STB6NANU on 28.230 MHz. I suggest it is probably an FSK signal not being resolved correctly.

### A LETTER FROM GIBRALTAR

Tony Leeming ZB2GW has written as follows:-

"I am very interested in 6 metres and would like to make a QSO with Australia or New Zealand. I would be prepared to try making contact by means of a sesh with any interested amateurs.

"In addition there is a 6 metre beacon here in Gibraltar, ZB2VHF, which is on 50.035 MHz. If any person hearing this beacon could give me a phone call we could attempt a contact. My home phone is Gibraltar 65240, office number 65664 (0700 to 1600 GMT, Monday to Friday). There is also another 6 metre operator, Jimmy ZB2BL, phone 70170. We are both equipped to receive and transmit from 50 to 54 MHz."

There is something for you DX hounds to have a lash at, and with another equinox coming up soon it might still be just possible to make such a contact before all effect from cycle 21 disappears. If you would care to write to Tony Leeming, his address is Box 292, Gibraltar, Europe.

### SIX METRES

The Es "season" now mostly behind us was one of mixed blessings. At times one could think it was more variable than some years, at other times one might be tempted into thinking it was generally better. What has been apparent was the number of occasions JAs and ZLs have been worked, and from a VK5 viewpoint I think we could safely say openings to ZL in particular have been frequent and often spectacular, with many stations being worked at times, and covering the four ZL districts.

My thanks to Bob VK5ZRO, that "watchdog" of the air, for adding to the information I had already assembled myself, and for those of you unable to be around when the bands have been open, here is a resume of what took place, as seen from the VK5 end. Circumstances would probably be roughly similar in other places in this large country of ours.

17/11/81: VK2, VK4, VK4, ZL1, from 1000 to 1207Z. 18/11: VK6 from 0423 to 0546Z. 20/11: VK2ZXB 0939Z. 21/11: From 0647Z big opening to Japan with signals to S9, from JA1, 3, 4 and 6. From 0822Z JA1, 2, 3 and 5. 22/11: ZL2, 25/11: 0720 to 0810Z. JA1, 2, 3 to S9. VK4ABP and VK4ZGO 0915 to 1006Z. 27/11: 0700 ZL3. 29/11: 0005 to 0133Z. JA1, 2, 3, 4 and 6 to S9. 0700Z. VK4ZJB, 0916Z. VK6RO, VK6GL 3/12: 0749Z. ZL3NE, 0650Z ZL3ADT, both S7. 5/12: 0712 to 0952Z ZL2 and ZL3,

many stations to S9. 6/12: 0320 to 0342Z. VK6KZ, VK6AB, VK6ZDX, VK6RO. 10/12: 0741 to 1000Z, many VK2 to S9. 12/12: 2200 to 2330Z VK2, VK4.

13/12: 0013 to 0108Z VK2 and VK6, many stations to S9. 15/12: 0900Z ZL3 to S9. 19/12: 0902Z ZL3ADT, 1108 to 1333Z VK2 and VK7. 20/12: 0400Z VK6. 21/12: 0927 ZL then VK7 at 0937Z. 23/12: 0810 to 1123Z, many ZLs from ZL2, ZL and ZL4. At 1240Z VK7. 24/12: 0058Z ZL2KT, then next day (Christmas Day) still in GMT time: 2305 to 2355Z VK2, VK4, VK7. 26/12: Quite a day, VK1, 2, 3, 4, 5, 6, 7, 8, JA1, JL1, ZL1, 2, 3, all between 0145 and 1116Z. 27/12: VK2, 4, 7, ZL1, 0050 to 0140Z. 28/12: VK6, VK7, 0300Z. 29/12: VK4 0400Z. 31/12: VK2, 4, 6 0300 to 0500Z. 1/1/82: 1040 to 1130Z VK7, ZL3.

As the log books of the various operators throughout Australia would show, there have been many more contacts to various areas from time to time, some have been more lucky than others, it's mainly being around at the right time that matters as some openings only last a few minutes.

The only known 2 metre contacts to take place between VK5 and VK2 occurred around 0050Z on 27/12 on 144.100 when Mick VK5ZDR worked VK2YUS, VK2ZAB and VK2ARD. Signals were not over strong. VK2YUS was the best at this QTH at S2, but I didn't work him, too many other locals trying!

### HEARD AROUND THE BANDS

During Es openings it is often rewarding to sit back and do some listening, you hear

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all sorts of comments and statements, various types of signals, some good, some indifferent, etc., etc. Here are a few things I was able to pick up by doing just that . . . listening!

30/11: VK2DDG so strong could hear dog barking in background. 3/12: ZL opening from 0700Z lasted for more than two hours. RTTY contacts noted between VK5AN, VK5MX, VK5AWP, VK5ZRO. 4/12: Ken VK2BNN just finished working ZL1, 3 and 4. John VK2BHO likewise. 5/12: VK2BHO heard working ZL again, and again! VK1FT, one of few VK1s heard this year. 6/12: Heard report of VK4 to ZL opening on 2 metres, not confirmed so far. 19/12: VK4KAA (ex VK4ZEZ) is moving to VK3 on 5/1/82. ZL2RAQR works VK1, 2, 4, 6, 7 and 8. VK2DBE using a 6 metre ringo type antenna now, expects to put up a log periodic soon. ZL1AVZ worked VK6ZYD. Repeated the effort on 20/12 just to prove it w as no fluke! 26/12: VK4GI working VK6WH 0724Z, both sides of contact audible in VK5. Ted VK2ZFS embarrassingly strong 0651Z. Worked VK4ZSH/M in Brisbane streets S9 plus 40 dB whilst mobile! Steve said he had worked two ZL stations plus a VK6 from his car which is something he cannot do from his home QTH due to channel 0 crud.

Bob VK6BE advised the Albany beacons are still off the air and are undergoing an overhaul. When completed they will be given a new home at the old whaling station, with the antennae about 50 feet a.s.l. He said it should be a good site with an excellent water take-off to the east. In the meantime, if conditions look favourable, Bob will run a keyer on 52.050 into which you should call if you want a contact during the key rest periods.

#### NOTED ON OTHER BANDS

24/11: 1130Z David VK5KK called CQ on 432.100 and was answered by VK5LP; he still hasn't got over the shock of being answered! 13/12: Mark VK5AVQ took the VK5 70 cm repeater up to Mt. Lofty (the beacon site) for a Sunday afternoon test of the equipment, and was pleasantly surprised at the response, with signals coming from all directions and over considerable distances. Even on its temporary aerial it put in a very strong signal at the VK5LP establishment, hills or no hills! 19/12: Andy VK2DUX said there would soon be a 70 cm repeater operating in his area. Same day Colin VK5DK reported keeping many skips with Lex VK3ZBZ at Frankston on 144 and 432 MHz, and on occasions 432 has been the better path. Same day heard a report of a 70 cm beacon at Carnarvon, seeming to confirm last month's listing. 28/12: Excellent conditions for 70 cm between VK5MC and VK5LP with signals 5 x 9 both ways at 1108Z. Chris managed to finally latch on to Col VK5DK who was busy working VK3s on 70 cm, and although conditions had changed somewhat a contact resulted at 1137Z, but it's a long way for me to work to the south-east through the hills.

Bob VK5ZRO reports that since 6/11 contact has been made practically every night between Don VK5ZRG at Whyalla and

himself at Elizabeth, distance about 250 km, with signals varying between 4 x 1 and 5 x 9+ with 10 watts. Similar contacts have been made during daylight hours with much the same results. Jim VK5ZJM at Port Pirie has also entered the fray at times. These northern signals are usually very weak at VK5LP due to the hills, but regular contacts can be made to VK5ZRO despite the huge amount of earth in the way! Similar results are to be had when working VK5KK, 120 km away at Arthurton.

#### FIFTY CENTIMETRES

It is not often a report is received of activity on 50 cm (576 MHz to the less informed) but a letter has come from Allan VK4ZRF detailing contacts made between his equipment and that of Steve VK4ZSH. It makes very interesting reading, and I quote:-

"Due to the recent high in the Tasman Sea extending a ridge up the east coast, we decided to have a go on 50 cm. 6/12/81: 1144Z VK4ZSH/P at Port Vernon near Maryborough to VK4ZRF/P at Best of All Lookout near Springbrook on NSW border, distance 335 km, signals 5 x 2 and 5 x 3. Queensland and Australian record. 7/12/81: 1027Z VK4ZSH/P at Elliott Heads off Bundaberg, while VK4ZRF/P again at Best of All Lookout, 377 km 5 x 6 and 5 x 8. NEW QUEENSLAND AND AUSTRALIAN RECORD. 11/12/81: When the ridge was on its last legs at 1245Z VK4ZSH/P from Noosa Heads to VK4ZRF/P at a spot 6 km west of Byron Bay in NSW, 255 km 5 x 5 and 5 x 7. NSW record."

"Identical gear was used at both ends: FT221R to varactor MA4060A doubler/doubler at 3.5 watts output, '6-UP' 50 cm converter with MRF901 preamp, and the aerials were single 17 element NBS design yagis with TR16 reflectors."

Congratulations to you both for a fine effort, and it would be some effort as you don't just separate by those distances without dedication. You deserve the records and I am sure I speak for everyone when I say well done, and let us all hear of some more of your exploits. But you had better keep on the ball as I do know of other possible attempts at the record on that band in the not too distant future, so beware!

#### WORKED FROM JAPAN

Graham VK6RO in a letter mentions still having contacts with stations in Japan on 6 metres using his mobile rig, plus a number of VK5s. Of great interest was a copy of the Japanese "CQ" magazine VHF page, which gives an outline of what was worked between 24/9/81 and 30/10/81. Normal call signs were stations worked, beacons obviously heard only. I have not included dates, and many call signs were worked on several occasions. How about the following for a sample of 50 MHz working:-

FW8SC, AH8A, H44HIR, P29ZSA, YB1CS, WB7EHU/KH2, DU1GF, ZL1UHF, LUBAHW, LU3EX, FK1RE, PY2AA, KC6DD, ZB2VF/H, H44PT, 3D2CM, KC6IN, YD3FU, KH6EQI, KG6JDX, YB3AI, KG6DX, PY2AJK, VSSLH, PY5AQ, PY5BAB, PY2XB, ZB2GW, ZB2BL, EL2AV, EL2FY, PY2CSS, ZD8TC, FK8DJ, PY1AUZ, PY6JRC, KH6HI, FK8AH, FK8AKB, KH6FQ, P5PAJF, PP5WL, PY5ZBU, KH6IAA, PY5AQ, VS6BE, VS6HK, LU2AJK, ZL1AVZ, LU9HJW, CX8BE, LU6DLB, LU9AEA, LU7DZ, CX4BA, HLJJD, LU2DEK, LU3DCA, CE3OK, K7KV, PY6BN, WA4TNV/KLT, WA6PEV, WA6BYA, LU1DMA, KL7AP, KL7CQ, N6AJ, 524YY, YD0BRR, KB7Q, KF7T, NL7D, KL7NO, AL7AW, ZL1MQ, ZL3RZ, ZL3NE, VS5STX, LU7EKA, W6XJ, K6HCP, N6CT, W6YKM, K6FV, 5B4AZ. Not included are quite a lot more from W6, KL7, KH6, LU, PY and others. Additionally there were many contacts into VK on 52 MHz.

One needs to admire the dedication of the Japanese operators who made all these contacts no doubt through much local QRM from sheer numbers of 6 metre operators. It is likely some contacts were lost for this reason alone. Nevertheless, it shows what could be done if 50 MHz was available on a global scale, thus including Australia and Europe — the possibilities seem endless.

#### 50 MHZ DX STANDINGS

Bill W3XO in November 1981 "QST" gives a large list of 50 MHz standings in his "World Above 50 MHz". Top of the list is LU3EX with 59 countries worked and 57 confirmed as at 22/9/81. What a great score! He is followed next by KH6IAA with 54 worked, 50 confirmed, W2IDZ has 50 (49). Then comes ZD8TC with 48 (44), JA4MBM 47 (44), VE1AVX 45 (41), JA1RUU 44 (43), JA1VOK 44 (43), and so on.

18 stations have worked 40 or more countries, 24 have worked from 30 to 39 countries, 44 have worked between 20 and 29 countries. All have been 6 metre two-way worked. Included in the list also are 19 operators who have contacted stations on all Continents! Maybe it is significant that no one with a score of less than 23 countries worked has worked all continents, and almost all those who have done so have worked 30 or more countries, so I expect it goes without saying that the more countries you work the better your chances for working more continents — seems logical.

One page is missing, but hopefully when it comes from Graham VK6RO, I will be able to fill you in on some of the history of 6 metres since 1945 and cycle 18, it looks interesting.

#### EME AND ALL THAT

Bill W3XO in December "QST" says K2UYH in his October "EME Newsletter" includes the fact that Argentina is again to be represented on 70 cm EME. LU9EHR, with his 20 foot dish and kilowatt should be quite popular. Also from the October newsletter comes word of the first all-solid-state moonbounce contact. The principals were WA2FGK and G3LTF, and the feat was

accomplished on 23 cm. The final of the transmitter on the US end employed just two MSC bipolar transistors. A higher power version, boasting 250 to 300 watts output, is in the works and is expected to be in operation soon. Is this last bastion of the vacuum tube, the high power RF amplifier, about to fall too?

In the US they think 2 metre Es is exciting around the US and Canada. W1PL passes along a report from HA5HO via an HF band QSO. The Hungarian station recounted 2 metre Es contacts back in June 1981 (summer in the north), with contacts to 4X4, OD5, 5B4, SM, OZ, LA, 9HI, GJ and UA6. You dyed-in-the-wool VHFers will have to get out your call books to check out those prefixes! (From "QST".) Looks as though there are occasions when it is useful to have close neighbours as in Europe!

#### OTHER ITEMS

A letter has come to me from M/S 582, Toowoomba, Qld., with a part listing of countries worked on 6 metres; but the list is not concluded and there is no signature. Would the author of the letter please send the remainder of page 2 and attach a signature!

In response to my request for such information, the custodians of the VK5RSE beacon at Mt. Gambier have sent a page of very useful information on their beacon. Many thanks for the well set out info. That means about half the beacons have replied after 15 months of asking!

I regret any confusion which may have been evident in the listing of dates for the Geelong sponsored "National VHF Field Weekend" in December. I originally phoned the Club at the time of printing deadline I had not heard anything, and was advised it would be on 12th and 13th December. In the meantime the date for the commencement of the Ross Hull Contest came out at a week earlier, namely 5th and 6th December, and the December Newsletter from Geelong also had that date. I was already committed to something else on that weekend so I was unable to go out at all. I don't know of anyone else from VK5 who went out either.

I see the lesson to be learned from this is that the organisers of such events as Field Days need to have information to Editors who might be involved with publicity at least four months before the event, which then gives time for the editor to get his notes in order, time for them to be printed and still give possible participants a couple of months notice. I hope all can be sorted out in time for plenty of notice for next year!

A new tropo record was set for the United Kingdom on 144 MHz on 4/9/81 between GDBEXI and EA8XS at 2240Z over a distance of 3025 km. The QSO was a prime example of marine ducting with S9 reports exchanged. A QSY to 70 cm did not produce a completed contact, although they tried for two hours.

Another first was on 10/7/81 when GI4GVS worked CNBBA on 144 MHz, a distance of 2337 km. This is then followed with the comment that 1981 was producing

some "super" distance contacts. (Hopefully this will continue into the southern hemisphere summer . . . 5LP.)

A new European DX record for 13 cm was set on 31/7/81 between DL7QY and SM6HYG at 1018 km with signals 529 on CW.

The above European information comes from "Short Wave Magazine" kindly lent by Steve VK5AIM, and the many pages of VHF activity indicate a continuing high level of activity over there, much greater than we ever see in Australia.

#### NORTHERN HEMISPHERE ON SIX

What we miss because we don't have 50 MHz! I am sorry to have to tell VK six metre operators that the northern hemisphere had contacts during October/November 1981 which exceeded their fondest dreams! January 1982 issue of "QST" and W3XO's "The World Above 50 MHz" makes mouthwatering reading, so I must pass some of it along to you.—

Bill says: "It is now clear that the F2 propagation this fall is exceeding everyone's fondest dreams. Conditions may even top those prevailing in 1979 when Cycle 21 peaked, according to the experts who keep track of such things. The sheer volume of DX contacts prevents any attempt to chronicle in any detail what is taking place. Nevertheless, I will attempt to hit the higher spots.

"October 23 was the first of the really exciting days for this reporting period. An FB opening to South America netted a new country in the form of PUEEE (Netherlands Antilles) for many, as well as producing LU9AEA, LU2DEK and PY2XB. Suddenly, from out of nowhere, came the voice of Kosice ZS3E, who proceeded to work upward of 150 stations in the East, Midwest and West of USA, providing a new country for most and a new continent for many. ZS6LN was also on on this occasion, working nearly two dozen stations in the 8th and 9th call areas. That afternoon brought the best Hawaiian opening to the East Coast that this conductor has ever heard. A number of operators finished their WASP that afternoon. The following day, a Saturday, was almost a repeat, but signals were not quite as strong. The level of activity and QRM was, of course, much higher. ZS3E and ZS6LN again worked many Ws and the KH6s were into the East Coast again.

"And then there was the North Atlantic path, which had also come alive during late October with crossbands as well as a number of interesting European calls on 50 MHz. The most prominent call, and definitely legitimate, was TF3SG, from Iceland, who worked many US and Canadian stations as well as HC1BI with a barefoot transceiver, whilst awaiting an amplifier.

"A big day for a few fortunate 6 metre DXers, including W3OX, was October 31. A station many of us never expected to hear came through with a very respectable CW signal on 50.112, if only for a few minutes. The country, Cyprus, and the continent, Asia, represented by 5B4AZ, went into the logs of those of us who happened to be in the right place at the

right time. Talk about luck, W3XO, whose amplifier was down, managed to work the final continent with just 10 watts! That afternoon saw the best opening to Alaska and Canada's North-west Territory in two years. Numerous KL7s and several VYs put S9 signals into the East Coast for about three hours.

"November 8, the second day of the SMIRK Contest, brought very good back-scatter signals to the East in the morning along with a great variety of Caribbean and northern South America stations, including J6LOV, J6LB, DL32B/VY5, YV5PE, PJ2DW, HP7AC, 9Y4LL and HK0BKX, all of whom provided lots of contacts and new countries for many.

"Another great day was November 12. Following an aurora the evening before, the band opened early with the FY7THF beacon copied on the East Coast by 1130Z. Then followed an excellent Caribbean opening and a few snagged C5AEH which was part of a DXpedition to The Gambia by W6JKV and N6BFF, who went there with high power and stacked beams and extensive liaison on 28.985, and by November 15 had worked several hundred stations in all US call areas, plus KG6, VS6, Caribbean and African stations, plus ZB2BL and HC8VHF. Anyway, back to the 12th. A good transcontinental opening began here in the mid-Atlantic States about 1630Z, the second in two days, with KH6s, along with T32AB, were in as early as 1730Z.

"Another DXpedition was that of HC1MDI/W8BAB to the Galapagos Islands, as HC8VHF. Using a 10 watt Belcom and a 2 element quad, was off to a roaring start on Friday, 13th November. Only three days later he had racked up nearly 600 QSOs in 47 States and all continents.

"An indication of the excellent conditions prevailing can be found in the report of the activities of K5CM and wife N5KW. Connie notes that both of them worked all continents over a 27 hour period, October 31 and November 1. A similar tale is related by W2UTH. Hank says he spent nearly 30 years on the band before making WAC, and now he has done it in about 44 hours!"

So there you have it. It almost makes you sick with envy doesn't it? Hopefully for us, something akin to these conditions might be found in the southern hemisphere during our "fall" soon coming up. If we can have a repeat of what happened last year on Easter Monday it will be some compensation, but it is hard to sit by and hear signals from 6 or 7 overseas countries on 50 MHz and not be able to work them, and that's what happened last Easter!

That should give you enough reading for this month, so now we conclude with this month's thought: "Opinions should be formed with great caution — and changed with greater."

73. The Voice in the Hills. ■

## HELP WITH INTRUDER WATCHING

# A Unique 80 Metre Mobile Antenna — that works

How many of us have had difficulty on 80 metres, operating mobile, due to the narrow bandwidth of our whip antenna? This has been even more noticeable with the advent of low power, solid state rigs, which reduce output substantially when "looking into" an antenna which is not resonant at the operating frequency. I have been using a commercial centre loaded whip, and for a long time carried a chart with me showing the length at which the tip should be for any given frequency. This worked fine, but necessitated stopping the vehicle to carry out the adjustment. To carry an antenna tuning unit in the vehicle was inconvenient, so I decided to build one in. Perhaps others may like to try this idea. It is simple and works extremely well. I adjusted my whip to be resonant a bit below 3.5 MHz, which meant that between 3.5 and 3.7 MHz it, being too long, exhibited inductive reactance. To cancel this out, I placed a variable capacitor in series at the base of the antenna to produce capacitive reactance. The capacitor is mounted right at the base and is varied by means of a flexible cable with a knob on the dashboard of the vehicle. A 200 pF capacitor was used, which allows a 1 to 1 SWR to be obtained over almost the whole of the band. If you want to work on the high end,

it may be necessary to shorten your whip slightly, but two settings will easily cover the whole band. My whip is mounted on the front of the vehicle, which means I need only a short length of flexible drive cable, but it would not be hard to place the capacitor on a rear mounted whip, as long cables are readily available — have a look at flexible drives for electric drills! If I do not have a VSWR bridge with me, I just peak the capacitor for maximum output or collector current. It works fine — why not try it? See you on 80m.—David VK2BDT, "SWARS, Feedback" (Lyrebird). ■

## EMC (Electro Magnetic Compatibility)

If radio frequency interference is causing you a problem you are reminded that — "Advice on all types and aspects of interference (PLI, TVI, AFI, etc.) is available from the National EMC Advisory Service".

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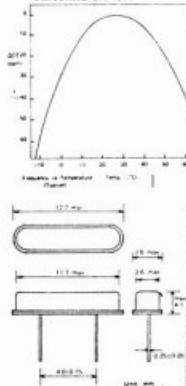
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# Field Day 1981

Paul VK5CGR  
(formerly VK3CGR)



This photo and front cover was taken by Bob VK3VJD, who assisted me by check logging during the John Moyle Memorial Field Day 1981.

Using the beam for a Field Day may seem a little extravagant for a single operator station, however it blew down in a storm about two months before the Field Day. After having just rebuilt the beam the opportunity was too good to miss. The site was near Longford in East Gippsland,

Victoria, and work on the site commenced well within the prescribed time period.

After antenna erection, 24 hours operating, and dismantling everything, I certainly slept well. Station details were a Wilson System II antenna, a 15 and a 20m vertical, a 40 and 80m dipole on a common feeder, a  $\frac{1}{2}$  2m vertical on top of the beam, a TS520S, an FT7, IC22 2m FM, SB200 linear and a 5 kVA generator. ■

## Close-Up



Joergen Christensen OZ8AE/VK0JC in the radio office of the Antarctic supply ship MV "Nellan Dan". With the transfer of ANARE headquarters from Melbourne to Hobart, mainland amateurs no longer have the opportunity of meeting "Joe" in person, but remember with pleasure the many contacts he made with them on phone and CW.

VK3SV ■

## MAGAZINE REVIEW

Roy Hartkopf VK3AOH

(G) General. (C) Constructional. (P) Practical without detailed constructional information. (T) Theoretical. (N) Of particular interest to the Novice.

### ORBIT June 1981

Moonbounce (G), Helical Antennas (P).

### QST July 1981

Microwave circuit construction (P). Towers (G). 2 Metre Direction Finder (P). Phase and Frequency Modulation (G).

### WORLD RADIO

A monthly magazine-newspaper published by Worldradio Inc. USA, with news of interest to amateurs. Also technical information, RTTY and ATV news and information on converting disposals equipment. ■



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# HOW'S DX



Ken J. McLachlan VK3AH,  
PO Box 39, Mooroolbark 3138

Spasmodic and erratic openings on all bands over the Christmas and New Year period made it very hard to work into certain areas at usual times although for those who were dedicated and could operate at irregular hours, the inconvenience was worthwhile, particularly on ten metres as signals at times were well over the nine from all continents.

In writing this column one thinks twice about forecasting DXpeditions in advance, such as Bouvet in January AR, but this was presented in good faith on letters received from Dieter DK9KD. The trip did not eventuate due to shipping problems which would have enabled the party to stay ashore for two or three days. The expense involved did not justify this and it has been put forward to 1983 and definite bookings are being negotiated, allowing a period of two to three weeks operating. It is believed that they have taken a sensible approach to give everyone a chance at a much wanted country.

The amateur who has just achieved his licence or the "old timer" who has just found the time to get down to DXing has my sympathy as the very rare, much wanted countries could become a thing of the past due to plain economics.

The escalation in shipping costs, fuel, food and the reluctance of some equipment manufacturers to loan equipment anymore because they have had their fingers burnt in the past, coupled with the fact that the market is pretty good anyway, so why advertise further? Also some DX foundations have withdrawn support as some operators in the past just have not done the right thing in the way of returning equipment lent and QSLed as they were expected to.

The amateur fraternity just cannot support a multi-thousand dollar venture and more enterprising organisers are turning it into a commercial venture by selling TV, radio and media rights.

Whether this is a good thing or bad, I am not going to debate and the days of "transceiver in hand, transformr in one pocket and a spare 807 in the other pocket" have long since gone with this

changing scene which we will all have to live with and no amateur should lose sight of the fact that it is a hobby. How much he wishes to subscribe to get a much wanted card is his business, but spare a thought for many brother amateurs who beg, borrow and steal just to have a "home brew" receiver, but are just as keen to build up his or her DX listings.

When the XZs hit the band, one well known "W" was heard to say to the QSL manager, Jin JABBMK, that he had sent a fifty dollar note with his card. This proved to be an expensive donation due to the fact that Newington do not recognise either station for DXCC credit. Whether the cash expedited the despatch of the card we will never know.

## HEARD ISLAND

Jim VK9NS advises that negotiations are still underway for a March visit. Jim has all the necessary permission and co-operation from the Australian Government Departments concerned, even to the approval of Kirsti VK9NL, accompanying the expedition, also the use of the accommodation and use of the diesel generator (if it can be started).

Rumour has it that a Stateside expedition could raise the necessary "green stamps", equipment and experienced operators to launch a successful onslaught on the much wanted area and tie up to QSLing with a minimum of fuss. However, the critical weather period may put paid to their thoughts for this year.

It would be a pity if Jim's group, who have done their homework for over two years were beaten to the punch.

## DXCC UPDATE

To update your DXCC countries list in the WIA Call Book so that it is correct as from the start of the year, insert 1A above 1S and name it the SOVEREIGN MILITARY ORDER OF MALTA. VP1 becomes V3 and VP2A is V2. There are no deletions to make, making the current countries list 319.

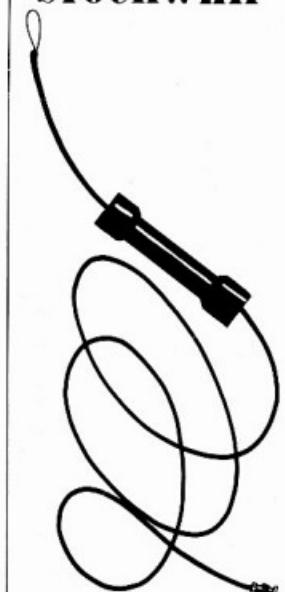
## STAMPS AND ALL THAT

A friendly discussion with another VK3 about how to get a letter into certain parts of the world without the stamps being confiscated (invariably with the letter and contents still attached). My policy of "accidentally" tearing the stamps before franking led another amateur to join in the QSO. He explained that International Postal Regulations state that a mutilated stamp could bring a penalty of double postage to the recipient even though postage had been paid and it had been officially franked. Sure enough, a quick check with Australia Post confirmed it.

Well! You cannot tear the stamps, you cannot get a letter franked without stamps unless you had fifty items! and who is going to save these special cards for a year and post them? There must be a way and I would be interested as would all DXers as to a surefire route to get the envelope untouched to the intended person.



## 2 METRE "STOCKWHIP"



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Luigi IV3OSH

Luigi IV3OSH owns a company which specialises in radio installations. The company sought and gained a contract for installation of equipment in various parts of the Malagasy Republic for communications back to the parent companies in Italy.

Too good an opportunity to miss for Luigi, as it could be combined as a "working DX-pedition" and after a discussion with his friend, Sergio IV3MUC, "why not?" was the unanimous answer and Sergio would do the QSLing for this much wanted country.

The equipment, an ICOM 720 and a Kenwood linear were gathered. The antenna would not pose a problem as Luigi would use the 15-element log yagi periodic which was already erected at Diego Suarez on the northern most tip of the Republic where he would be based during his stay.

Customs at Tananarive proved no problem to him when he arrived on September 15 en route to his temporary QTH and it wasn't too long before "the pile-ups" had to be heard to be believed. However, some 2800 QSOs were made in eleven days, which was extra good considering they were made in Luigi's spare time and when openings existed and overall being governed by a fluctuating line voltage.

This was quite an experience for the 29-year-old company owner who has held an amateur licence since 1970. But the "hamming/business" trip was to be marred by the customs officials at Venice airport on the return trip as they confiscated the baggage which included the "valuable logs" and it took over a month to get them cleared from "officialdom".

Sergio IV3MUC's work was now to commence with the QSLing which he had to combine with his business of manufacturing TV parts and the duties of being president of the radio club of Pordenone, a club which he helped inaugurate when first licensed in 1959.

The photograph shown is of Luigi putting the finishing touches to the rotator after mounting a six element yagi onto a 54 ft. boom (you have read right) for an exhibition staged by the radio club of Pordenone recently.

It is believed that Luigi is welcome back in the Republic at any time for operating which is very comforting to the amateur fraternity considering some islands have

closed the shutters on incoming amateurs, especially those who have upset the environment on previous occasions.

#### PREFIX HUNTERS

A rare one, EX. Twenty-five of these prefixes have been issued by the USSR to celebrate the city of Kiev's 1500th anniversary.

Special cards will be struck for the event and all paperwork will be via Box 88, Moscow and preferably via your local bureau.

The prefix will be current for three months, commencing March 1982, and both CW and SSB enthusiasts will be catered for.

#### QRM

No wonder we have our share of "tuner uppers" on the bands. A very sparse owner's manual for an exclusive transceiver, in its lists for SSB operation, includes, "Select an unused frequency near desired operating frequency, key transmitter and speak into the microphone while adjusting mic/carrier to power output desired".

Pity the same company does not manufacture a dummyload otherwise the wording would probably be quite different.

#### C, N & C

Christmas, Norfolk and Cocos-Keeling Islands have their own administrations and of course their own stamps which are usually beautifully designed and coloured. Although the islands are Australian possessions, mainland stamps are of no use.

If you are determined to put a stamp on the return envelope the Philately Sales Centre at some major Post Offices in each State can gladly oblige with the correct stamp at cost. Also, some centres carry stamps for P29, 5W1 and VR6.

Your local post office can supply the QTH of the one nearest to your locale or you may also deal by mail.

#### AP

The log books of some VKs have been swelled by some APs leaving their beloved fishing hole of between 14.201 and 14.210 MHz and chasing VKs for a change.

Simple explanation, just want to know the cricket scores, but it is one way of getting a 5 x 9 report. However, the card could be elusive looking back on past tours when the same thing happened.

#### YACHTING

Hats off to the dedicated small group of amateurs who have been keeping Paul G4PEN/MM company on his round the world cruise in this 17m schooner, the "Spirit of Pentax".

These guys keep tabs on Paul, getting updates on conditions and weather conditions, helping where possible with advice and keeping him abreast with the latest events of the world. Also with idle chatter that helps to while away the lonely hours of such a long journey. The trip is being sponsored by the Pentax Camera Company, as the vessel's name indicates.

#### QSL ROUTES

Never knowing where to draw the line of printing who wants what with the space

available, the offer of assistance with difficult QTHs is open. With current QSL lists from America and hopefully, by the time you read this, the acquisition of 1982 Foreign and American call books, we will do our utmost to find the route for you.

An SASE with relevant call sign, mode and band to QTH(R) will bring a prompt response for the rare QTH or route you desire. A copy of any QSL routes you may know would be appreciated for updating the records.

#### QSL CHANGES

Dave VK3DHF ex VK9ZD wishes to advise that he is handling his own cards and guarantees 100% return either direct to 9 Milton Street, Heathmont, 3135, or via the bureau. Dave has never allowed the logs out of his possession and an SASE will guarantee a quick return.

Jill VK6YL is handling Tony VK9ZH's paperwork and exchanging the log on 20 Mx. Also, either direct or via the bureau will gain prompt return.

Tony VK9ZH is very active and is particularly looking for contacts on 6 Mx.

Although not exactly a QSL manager change, Jim and Kirsti VK9NS and NL have been given a larger P.O. box, so please QSL to Box 90, Norfolk Island, 2899, Australia.

Jim VK9NS is manager for VK0AN and requests one card, one envelope to aid a quicker turn around.

#### SWLING WITH BRS 47513



Peter BRS 47513

Peter BRS 47513 has been SWLing for a number of years and can still recollect the thrill of hearing VK2UK in 1972 when he was using a "home brew" modified wartime receiver.

Peter's QSL report has got to be seen to be believed, it is accurate to the minute, types of equipment used and the main topics of conversation. To decorate the foilscape page report there is an excellent cartoon which is hand drawn. On this performance he SHOULD have a 100% return.

Best time for the VKs according to Peter is in the mornings in "G" land and he prefers 21.150 to 21.200 MHz where the QRM from Europe is at a minimum but at other times it becomes impossible with the long wire antenna which is 150 feet long, but bent around a "few" corners and 18 feet high.

The "home brew" ATU is a good QRM sorter according to Peter and this is fed into a FRC7 or a Trio 9R59DS receiver. The other interest is 1.8 MHz and an "old" navy type receiver, which was donated by a friendly amateur, does a very fine job on this band and a number of European stations have been logged.

Peter is 23, works in a carpet warehouse and also enjoys fishing and shooting.

In May, he will sit for his licence so that he may speak to some of the exotic call signs he has logged as an SWLer including JY1 whose card is proudly displayed in his shack.

Good luck, Peter Norris and may we have the pleasure of having you in the log this year after the celebrations at the "Crown and Anchor" with the YL.

### 30 Mx

10.1-10.15 MHz was christened on New Years morning firstly by the ZLs where Roly ZL1BQD and Tony ZL1AZV/M had a QSO at 2 seconds after midnight, their time. A SWL report from this QTH would have been 5 x 9 to both stations but it was a pity that the QSO was in the CW segment which is by gentlemans agreement.

Eric VK3AX and myself would have been one of the first in VK with good signals on 10.125 MHz. Many stations were heard and reports of DL, G, GI, P29 on CW have been passed on.

This could become a very reliable mobile band and would be great for experimentation.

Ron LU5ZR is looking for DX contacts on 24 MHz which they acquired at the start of the year. So when it is released here a lot of interest will also be shown if the solar activity is still high.

### VE POSTAGE

As from the 1st January 1982 VE postage took a hike from 35c to 60c for external airmail, 17c to 30c for internal mail and 17c to 35c to the USA.

With IRCS being redeemable at 30c value, two should suffice.

### SOUTH PACIFIC DXING

Dick VK3VU and Ernie VK3DET advise that they will be mounting a DXpedition to the following call areas on the dates shown.

Western Samoa: 2 March-10 March 1982.

SW1DV (VK3VU) and 5W1DW (VK3DET).

Nuie: 11 March-25 March 1982.

Tonga: 26 March-15 April 1982.

Fiji: 16 April-20 April 1982.

They will be particularly looking for VK stations and catering for the Novice operators on phone and slow CW. Also they hope to check into the ANZA net, 21.204 at 05.00 UTC, daily and also the Caribbean net on 14.175 at 10.30 UTC.

Please QSL to the operators home call and the QTH is Box 600, Ballarat, 3350, Australia, with SASE or equivalent postage.

Oscar and 80 Mx will be operated as time and conditions permit so all bands should be covered.

Dick VK3VU has offered to forward advice for anyone wishing to obtain an amateur licence in any of these exotic areas, so if you are thinking of a "hamming holiday" it is suggested you contact Dick at the QTH listed.

Good luck guys, a happy holiday, good DXing and we look forward to hearing you.

My appreciation for the assistance with these notes must go to VK3UX, 3YL, 3DWD, 4KA, 4AIX, 6HD, 6IH, 6XI and SWL Eric L30042. 73s, Ken.

### 160 Mx CW DX WORKED IN VK6

4X4NJ, 9V1TK, DL, E8AK, E18H, EZ3UAV, F, G, GI30QR, GM, JA, KP4KK/DU, LZ2KTS, LZ2RF, OE1EKM, OZ1LO, SP5INQ, UB5QUBO, UL7TBM, UP2BAS.

### 80 Mx CW DX WORKED IN VK6

4S7MX, 9K2DX, HK0BKX, SV0AA, TI2PZ, VP9BK, VQ9AB, XT2AW, YJ8RW.

### 40 Mx CW DX WORKED IN VK6

3B7CF, 9K2DX, HS1ALF, UK0YAA (Zone 23).

### FROM THE LOG OF VK6HI

CALL SIGN	TL7YS	TWENTY Mx
A71AD	TR8DK	A71AD
C5ADS (YL)	UK8MKF	A71AU
CN8EA	YI1AS	C6AWU
CR9AN	Y8R9RVE	EABJ/V
EL2AK	ZC4NB	HH2SD
EP2TY	ZD7BW	OY5NS
GD3KHA	FIFTEEN Mx	OY9S
H5AK	A71AD	PJ7ARI
HH2SD	C5ACJ	VK9XW
J2BDC	CR9AN	WP2KT
J3AH	FM0GA	WP6QC/8R1
JAI1B/M.T	HZ1AB	FORTY Mx
JX5AA	PJ8UO	PJ9EE
K2M2ZS/SV9	W9QL/BR1	UD2KF
OY9R	ZB3GW	

### THE CW BANDS WITH ERIC L30042

#### 80 Mx

DF3FI, G3PDL, GI3IVJ, HA9RC, JA5DX/4, MM, LZ1VO, OZ1LO, SM6CPY, SP7KTE, U5D, UA0UJ, UBSDBC, YU2FVW, YU3TIA, YU4FRS, YU7DX.

#### 40 Mx

CO2OM, DF0AFZ, EA8QJ, FO0WA, GI3QQR, HC7CM, HK3YH, HK0BKX, H44DX, DE3JK, OH1OU, ON7LE, UD6D, MV, UK2BBB, UQ2GLR, VK9NL, VP2VGC, VOAB, VQ9MM, VU2JC, ZB2EO, ZL3AFH/A, W6YB/3D6, 5WIDT.

#### 20 Mx

A4XJP, EA6EA, EA8QQ, FM7CF, FG0BKZ/FST, HZ1AB, HH2JL, J2BDF, TF5TP, T30AT, TI2BGA/5, VP2MM, VP8ANT, YJ8TT, ZK2AD, ZS5GM, 4X4WF, 3B2DO, 9K2DX, 9Y4KG.

#### 15 Mx

CX1DZ, CN8CY, C31LM, W4BPD/C6A, EC9QK, HC8MD, HK1QQ, HT1CTJ, KV4BQ, PY2ZEB, TG4NX, VP9CB, VQ9AB, VS5PM, XE1GPR, YJ8RW, ZK2RU, ZS2U, 4S7MX, 5B4JK.

#### 10 Mx

HG3KGC, HL9RC, HZ1HZ, JD1BAR, KX6QC LU9VC, DE3SE, OH0DXG, P29NPL, SP9CAV, U2R, UD6DLK, UF6CR, VS6CF, VU2UGI, YC0BVO, YJ8RW, 4X4FA, 9H1CH, 9V1UQ.

### QSLers OF THE MONTH

CM8SC, N7ET/DU6, EA6DI, KH3AB, KP2A, M1PA, SVA0AA/5, T12FA, T12VVR, UL7FP, VS6CF, VU2VTM, ZL0AES, ZK1AC, 5W1DG, 5W1DK, 9H3BLV.

#### Call — Manager

SN9AC0V/8	IV3ACP
5W1DT	AA6AD
601ED	W6HS
8P6IB	WA4WTG
9U5WR	SP6FIR
9V1UQ	K5BLV
A6XJA	PA0DL
A71AU	DJ8ZB
AP2ZB	J46GCG
AU7CD	VU2CD
CM8SD	N9BSB+
E1WPO	E1ZC
EP2TY	JR3WRG

#### Call — Manager

OY9R	K2JL
P41C	N4RV
SU1AA	CH2MM
T30AT	G3XZF
TE1C	T12CF
TG4N	WD6MOV
TL8RC	F8EZV
TN8AJ	DM2XL*
TN8AJ	Y25LA*
TR6GM	F6ESH
USD	UK5OKA
VP8QI	G4CHD
VS6GZ	OE1HGC

FG0BKZ/FST — F6BBJ

HL1AEK — JH7VEH

J07BD — BG2SM

JY1RL — ZL1BMU

KV4AA — K5PBT

OX3BX — DZ2KW

VU2PP — K8ZBY

XE2SD — WD6DRM

Y1AS — DK2OC

Y29HDE — YUHDE

ZB2EO — K3MNW

### DX WORKED IN VK4

#### SEQUENCED IN BAND/MODE/CALL SIGN

10/SSB AH8A, CR8D, JG12UY, JG6RE, KH2AP, KX6MM, PA1C, PV2AAC, VS5SD, ZK1CC, ZK1CG,

15/CW FM5FO, FM7WU, ZK2TA, FK8CE, 20/CW

FK8AD, 30/SSB VK3JAH, 80/CW FK6DD.

### DX WORKED IN VK3

10/CW HZ1HZ, KX6QC, SP8ACV, U2R, 10/SSB

9U5WR, DK2OC, G3N8C, V1A5, 15/SSB 707HH,

TN8AJ, Z21BP, ZSSDC, 20/SSB 5T5ZL, AS2JA,

A71AD, C31SD, DB8AM, JY1, VK0AN, ZD7HH,

### QSL ADDRESSES

YK1AD — Box 35, Damascus, Syria.

V3ME — Box 367, Belize.

N98SD — 1307 Widgeon Dr., Rockford, Ill. 61108, U.S.A.

KP4GN — Box 532, Guyana, Puerto Rico, 0065, U.S.A.

KC8MM — Box "D", Ponape, East Carolines, 98641.

J1A1AE — Box 2, Ogasawara Islands, Japan.

HC8MD — Box 665, Cuenca, Ecuador.

FOBHI — Box 5872, Papeete, French Polynesia.

FO8DF — Box 5225, Tahiti, French Polynesia.

FK8AL — Box 3994, Noumea, New Caledonia.

CR9AN — Box 568, Macau.

A9X — Box 14, Manara, Bahrain.

A71AD — Box 4747, Doha, Qatar.

A4XRU — Box 981, Muscat, Sultanate of Oman.

A4XHI — Box 18530, Salalah, Oman.

4X4NDT — Box 3078, Beersheva, Israel.

## Faces Behind the Key and Microphone



Masa JA5NW



OE1MTA with SWL Barbara



Ulli DK2OC, Lynn DA1GF and OM Bob DA1GR.

# The Saga of VK3ATN

Ray Naughton VK3ATN

Here are the facts of the events which occurred during a severe storm as related by Ray himself.

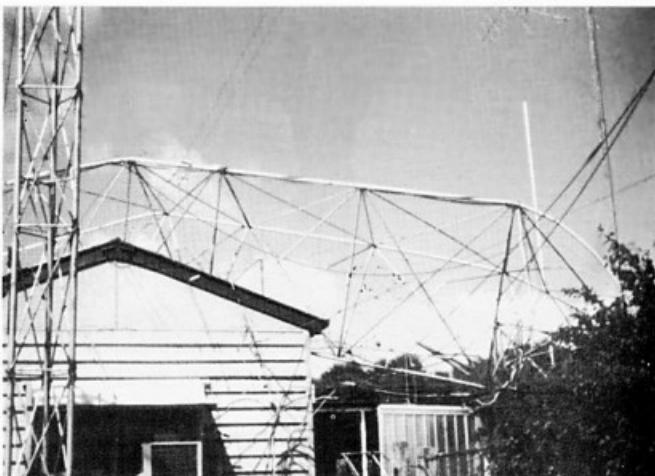
An unusual storm hit Birchip at approx. 5.45 p.m. on Tuesday the 27th October and caused an estimated (conservatively) \$3 million worth of damage by wind and hail from Birchip to Bendigo. The peak wind gusts I had previously experienced in Birchip were 100 kph. This one I estimate was closer to 200 kph. My VHF tower was a very solidly built 100 footer with triangular base, 10 foot on a side and had stood majestically for the previous 23 years. During that time it had a variety of antennas on it and due to the high top wind loadings, steel cable guys with breaking strain of 4 tonnes were originally installed at the 70' and 95' levels in three equally spaced directions.

On the eventful day the top loading consisted of a 20-el. collinear for 144 MHz with  $\frac{1}{4}$  wave spacing at the 90' level. A stack of four 20' long yagis stacked 14' high and 14' wide and centred at 110 ft. A 30' long 8m yagi (11 elements) at 100' and a  $\frac{1}{2}$  collinear for 2m, the top of which was 140' above the ground. The prop pitch drive motor was at 50' up the tower and the estimated weight of drive tube masting and antennas above this (pressing on bearings on top of tower) was 150 kg.

At approx. 5.30 p.m. a discussion with my XYL indicated that a storm and rain looked like blowing up and I was talked out of mowing the lawn. I then realised that due to visitors at the weekend, the waterproof cover which had been slid up from the p.p. motor had not been replaced. Not wanting water in the top of the motor, I told the XYL I was going up the tower to replace it — will be back in 15 minutes. I found my safety belt and necessary tools and climbed to the 50' level. On later examination I now realise that I had re-positioned the cover partially, therefore I must have been at the 50' level. After that I am afraid I can't remember what happened, however, the following is reconstruction of what probably happened.

I was on the access ladder on the south side of the tower. The wind came from just north of west with such force as to break the west guy at the 70' level followed by the guy at the 95' level. Unguyed the tower could not have withstood this force and began to topple towards the east. It ended up over the shack (ht. 16'), across trees and a 240V power line and the top of the tower ended up half-way across the side street. On later inspection it was found that the prop pitch motor bracket and frame (of  $2'' \times \frac{1}{4}''$  angle iron) had been bent upwards about 4" due to angular velocity of tower when it hit the ground (at top) and combined weight of rotatable antennas and drive tubes etc.

Also, I believe I was standing on ladder on the south side of the tower and although



100 ft. tower which Roy rode down, lying across shack.

I had a safety belt on, I was not attached to the tower — thus preventing a possible broken back. I am sure I was still grasping the ladder when it went across the shack roof, and the place I was standing on ended up 10 to 12 feet above ground. I was thrown off the tower like a missile and ended up approx. 20' further along the ground.

I praise and thank God that I am still alive.

I ended up with three crushed vertebrae, four fractured ribs on the right side, fractured right ankle and badly fractured left wrist which has been reconstructed three times.

At this stage may I thank the medical officers, police and hospital staff at Birchip, also staff at Horsham and Royal Melbourne Hospitals. I was overwhelmed at the number of cards and the number of amateur operators who showed concern or visited me in Horsham or Melbourne. I also appre-



The forces of nature.



Looking through collapsed tower towards dish.

ciated the radio equipment which was set up for my use while I was in Melbourne. Thank you all. I apologise for not making the Western Zone convention, but was otherwise engaged. Thank you for the "Scrolls".

Thank you again to all who have shown so much concern and may I conclude by saying the amateur fraternity really provided therapy I required and still do.

Some 25 ft. away from the 100 ft. tower was a 16 ft. dia. dish used for 432 and 1296 work including successful moon bounce, on a very much strengthened 43 ft. high wind light tower. This tower was bent over like a hairpin at the top and the dish instead of pointing straight up (parked position) was looking down at the ground. The dish itself was not damaged.

I am very limited physically at the moment, but will try to get things back up and operate as soon as possible. ■

# 1981 Novice Contest



Medallions awarded for last year's Commonwealth Contest. This year's will be similar.

Photo: Lloyd Hull

Following are the results of the 1981 Contest. Firstly a few words to the contestants.

Thank you for the very high quality of the submissions and their presentation. Quite a lot of effort has been put into the clarity and the security of the logs, which greatly helped. From the results it is obvious that there was not a lot of activity — especially in the CW segments. I must agree with some of the comments made on this lack of interest and I will try to devise some method of generating interest for the 1982 Contest.

Some checking of the logs showed an undue amount of duplicate contacts. Although it was obvious that the logs had been checked, in some cases the number of duplicates were numerous. This increased my work load considerably.

Now for the results and congratulations to all participants.

## NOVICE PHONE

Call	Points	Call	Points
VH4VHW	153	VK4VJK	464
VK7NBC	157	VK6NLD	509
VK1NAM	194	VK5NWS	557
VK7NNV	206	VK2NHV	603
VK4VCE	224	VK3NLO	638
VK4NIK	302	VK7NWR	677
VK4NVV	352	VK2KCB	820
VK5NOD	413	VK3PGG	888

## NOVICE CW

### VK3NZO

### RADIO CLUB PHONE

### VK2NWG\*

### VK7NW

### VK5SSR

### VK2DXS

## RADIO CLUB CW

### VK2NWG\*

### FULL CALL PHONE

### VK2BID

### VK2BQS

### VK2AUX/

### NCM

### VK3DOA

### 681

### 818

### 595

### 606

## FULL CALL CW

VK5GZ*	10	VK3XB*	105
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## LISTENER PHONE

L60036	377	L30042	26
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## NEW ZEALAND PHONE

ZL1IM	106
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Those calls marked with an asterisk have participated in both Phone and CW sections.

## COMMONWEALTH CONTEST 1982

### WHEN

1200 GMT Saturday, 13th March, to 1200 GMT Sunday, 14th March, 1982.

### MODE

CW (A1) only in the 3.5, 7, 14, 21 and 28 MHz bands. Call is CQ BERU. The Commonwealth Contest is a single operator, single transmitter event.

Eligible entrants are radio amateurs licensed to operate in British Commonwealth call areas as listed below.

Note that G, GW, GD, etc., are counted as one area.

### SCORING

5 points for contest exchange (RST 001, etc.), 20 points for each of first, second and third contact in each call area on each band. Contacts with one's own area do not count at all.

### LOGS

Separate logs are required for each band showing columns:—

1. Date and time GMT.
2. Station worked.
3. RST/serial number sent.
4. RST/serial number received.
5. Band.
6. Leave blank (for checking).
7. Contact points claimed.
8. Bonus points claimed.

Each band log should be separately totalled and should include at the end a check list showing areas worked and number of contacts per area. Separate band totals should be added together and the total claimed score entered on a cover sheet, giving particulars of station, QTH, equipment, power, antenna and a declaration that the rules and spirit of the contest have been observed.

It is important that logs are carefully checked for duplicate contacts. Unmarked duplicate contacts for which points have been claimed will be heavily penalized and logs containing in excess of five will be disqualified.

Entries may be single or multiple band. Single band entries should claim contacts on one band only, but details of contacts on other bands should be submitted for checking purposes only.

Entries should be addressed by AIR MAIL to:—

D. J. Andrews G3MXJ,  
18 Downsview Crescent, Uckfield,  
East Sussex, England, TN22 1UB.  
Closing date: 17th May, 1982.

## COMMONWEALTH CALL AREAS

The following call areas are recognised for the purposes of scoring in the 1982 Commonwealth Contest:—

- A2 Botswana, A3 Tonga Is., A5 Bhutan.
- C2 Nauru, C5 Gambia, C6 Bahamas.
- G/GB/GD/GI/GJ/GM/GP/GW.
- H4 Solomon Is.
- J3 Grenada, J6 St. Lucia, J7 Dominica, J8 St. Vincent.
- P2 Papua New Guinea.
- S2 Bangladesh, S7 Seychelles.
- T2 Tuvalu, T3 Kiribati.
- V2 Antigua and Barbuda.
- VE1, VE2, VE, VE4, VE5, VE6, VE7,
- VE8, VK1, VK2, VK2 Lord Howe Is., VK3,

VK4, VK5, VK6, VK7, VK8, VK9 Christmas Is., VK9 Cocos Is., VK9 Norfolk Is., VK9 Willis Is., VK0 Heard Is., VK0 Macquarie Is., VK0/VP8/ZL5 "Antarctica", V0, V3, VP2E Anguilla, VP2K St. Kitts Nevis, VP2M Montserrat, VP2V British Virgin Is., VP5 Turks and Caicos, P8 Falkland Is., VP8 S. Georgia, VP8 S. Orkney Is., VP8 S. Sandwich Is., VP8 S. Shetland Is., VP9, VQ9 Shagos, VR1 British Phoenix Is., VR6, VS5, VS6, VX9 Sable Is., VY1 Yukon, VYO St. Paul Is., VU India, VU Laccadive Is., VU Andaman and Nicobar Is.

YJ.

ZB2, ZC4/5B4, ZD7, ZD8, ZD9, ZE, ZF, ZK1 Cook Is., ZK1 Manihiki, ZK2 Niue, ZL1, ZL2, ZL3, ZL4, ZL Auckland and

Campbell Is., ZL Chatham Is., ZL Kermadec Is., ZM7.

3B6/3B7 Agalega and St. Brandon, 3B8 Mauritius, 3B9 Rodriguez Is., 3D2 Fiji, 3D6 Swaziland.

4S7.

5H3, 5N2, 5W Samoa, 5X5, 5Z4.

6Y5.

7P8, 7Q7.

8P, 8R.

9GI, 9H Maltese Is., 9J2, 9L1, 9M2, W. Malaysia, 9M6/9M8 E. Malaysia, 91, Y4.

\* All calls operated from Commonwealth controlled areas of the Antarctic (VK0, VP8, ZL5, etc.) count as one call area.

## AUSTRALIAN AWARDS

1. An individual award to the highest VK scorer — a gold medallion.
2. A state team award — 4 silver medallions to the state team of 4 which achieves the highest aggregate score. If the "individual" winner is a member of this team, he will receive the gold medal instead of the silver one.
3. An award, as before, to the middle placing among VK entrants, i.e. to say, the 22nd placing among 43 or 44 entrants — a bronze medallion.

It is hoped that there will be sufficient entries in this year's contest to make up full teams from each VK call area.

Results of the 1981 contest appeared in Amateur Radio of November 1981. ■

# The Only Way to Go is Up

Eddie Cooling VK5ZE Hon. Secretary, Elizabeth ARC

One of the major problems that has faced the Elizabeth Amateur Radio Club in its 20 year history was the lack of permanent Club Rooms. It has always met in schools, church halls, Scout halls or whatever other venues it could obtain. Frequent moves and nowhere to store any equipment prevented the Club from getting involved in long term worthwhile projects. Now that has all changed. After successful negotiations with the South Australian Engineering and Water Supply Department the Club has signed an initial five year lease on a disused water tower in Elizabeth South with an option to renew. At last a permanent home to call our own.

Although the Club has only been in residence for a few months a great deal has already been accomplished. The ground floor has been painted (in part) and a kitchen, albeit somewhat primitive, has been set up and some furniture moved in. The floor is now being used as a general meeting hall. Two working bees are held almost every week and gradual improvements are being made. In addition to the meeting hall, a radio shack has been established on the top floor (some 120 feet up!). This rather elevated shack houses the Club's TS520, plus a number of items of borrowed equipment. Wire dipoles are strung from the windows of this floor and will suffice until the 3 element beam can be erected atop the water tank at the 160 foot level.

The tower is an enormous structure and comprises six separate floors. Ultimately each floor will have a specific function — it is planned to set up workshop facilities, lecture rooms, a library and an amateur television studio. A great deal of time and effort will be required to bring the project to fruition and many thousands of dollars (that we don't have at present) will have to be spent. However, the Committee and Club members are undaunted by the magnitude of the task and are confident that within a couple of years the Club rooms will be amongst the biggest and best in



Australia. One thing is certain — they will be unique!

Adapting a water tower for use as Club Rooms is not without its problems. Firstly, the shape of the rooms is far from ideal. The structure is built in the form of a gigantic outer cylinder with a smaller inner cylinder in order to support the massive water tank. As a result each room is in the shape of a king size doughnut. The rooms will therefore have to be divided into two or three segments to make best use of the floor space. Until this is done, not only do meetings have to be held on one side of the room, but we also have a problem with the acoustics, as each room behaves like a giant echo chamber. Conversation must be kept down to almost a whisper otherwise speech becomes unintelligible. This also creates some odd effects when the Club's radio station, VK5LZ, goes to air.

Transmissions sound like the operator is using a Good Buddy Power Mike wound flat out! Work is in progress to build soundproof cubicles to bring our audio back to normal. Access to the upper floors also presents some difficulties, particularly to older members or to those not accustomed to climbing vertical steel ladders. Each floor is connected to the one above by a 25 foot, somewhat flexible, steel ladder and entry to each upper level is via a small square manhole cut in the floor. Much of the furniture and fittings required on the upper floors will have to be knocked down and then re-assembled after the parts have been labouriously hauled aloft.

Currently progress is being restricted by lack of sufficient finance — the Club has never before had to think in terms of thousands of dollars. To overcome this limitation members are actively engaged in every type of fund raising imaginable, from bingo tickets to bring and buys. A recruiting campaign is currently under way and already showing results.

The Elizabeth Amateur Radio Club has had its ups and downs, but this new project gives us a mountain to climb and the only way to go is UP.

Enquiries about the Elizabeth Amateur Radio Club should be addressed to Box 8, Elizabeth 5112. Club meetings are held at the tower every Wednesday evening at 7.30 p.m. New members and visitors are always welcome. ■

## QSP

### NEW BANDS — UK

November 1981 Radio Communication states that their licensing authority has authorised the use of the 10100 to 10150 kHz band for the amateur service on a secondary basis from 1st January, 1982. UK amateurs will be permitted the use of this band on a "non-interference" basis. The new bands at 18 and 24 MHz, they state, will remain allocated to the fixed and land mobile services until existing assignments have been transferred to new frequencies. ■

# SPOTLIGHT ON SWLing

Robin Harwood VK7RH

5 Helen St, Launceston, Tasmania 7250



In the first paragraph of my January column I stated that the 40 metre amateur allocation had been increased as from January 1st. THIS IS INCORRECT, AN ERROR ON MY PART, NO SUCH ALLOCATION HAS BEEN MADE.

I sincerely apologise for any inconvenience caused to the WIA, Amateur Radio and its readers and the Department of Communication. I will certainly check my sources of information more thoroughly in future.

It has also come to my attention that several K calls have been operating on HF bands for which they are not entitled. They are only permitted to operate within the novice sub-band and on VHF and are not allowed to transmit outside their allocation.

As predicted in this column, events in Poland did dramatically alter early in December 1982. Radio has played a significant part in this conflict and it is being extensively utilized by all sides.

The first sign of trouble came at 2300 hours GMT on December 4th, when all transmitters, whether it be broadcasting or utility services, suddenly ceased. All external communications, telephone, telex, etc., from Poland were also severed from this hour. At 0500 GMT Radio Warsaw came back on with the now famous speech of General Jaruzelski, the Polish leader. Only one frequency was used, Warsaw's long-wave outlet on 227 kHz.

The external service was silent for 10 days, and Radio Polonia has been heard since December 15th, broadcasting in Polish, English, French and German. All their transmitters have been coupled to broadcast a common programme of two hours duration. The transmission starts from 1230 hours GMT until 2430 hours, consisting of 40 minutes in Polish and 20 minutes spots of the other languages. The best frequencies in Australia to observe R. Polonia would be their 41 and 49 metre band frequencies at 2030 GMT.

It was also reported on Media Network on Radio Netherlands that there have been several short transmissions from clandestine outlets from within Poland, using amateur radio equipment, on 40 and 20 metres, which have been heard in Denmark. However, it seems unlikely that

these could be observed in Australia, as they have been very weak in Scandinavia. Since the events in Poland there have been increases in Polish and other Eastern European languages broadcast by the BBC, Deutsche Welle, Radio Free Europe/RL, as well as very marked increase in jamming and other electro-magnetic counter-measures in Eastern Europe and Central Asia. This means others suffer from this electronic pollution.

This year marks two very significant anniversaries: the BBC's Overseas Services and the Voice of America. It is 50 years since the commencement of the BBC External Services in 1932, while the VOA will be celebrating its 40th year of operation.

On the 17th of December the USSR launched six amateur radio satellites. These have been observed very well in Australasia on their 29 MHz outlets. Three of the satellites are robot satellites — RS3, 5, 7 — while the remaining ones are transponders. It is not my intention to duplicate any information which will be available in the AMSAT column, so I would urge you to read the information in VK3ZBB's notes, as he has more precise data than I can provide.

However, on December 25th it was interesting at 1120 GMT to observe RS8 and Oscar 8 overhead at the same period, and to hear stations working through both transponders simultaneously. Fortunately the transponder outlets are different in frequency by approximately 100 kHz.

The prospect that these Russian satellites will give us a larger window will generate interest in more operation in amateur satellites than is presently available.

Recently I was reading the account of Clarence W. Jones and of his endeavours with the commencement of Radio HCJB in the early 1930s. From a 250 watt transmitter on 5936 kHz in 1931 to a vast transmitter of 500 kW today, capable of broadcasting on any nominated frequency, is certainly an accomplishment. Interestingly, HCJB has been going longer than the BBC External Services and the VOA, yet is only nine months behind Radio Vaticana. What is the oldest continuing shortwave broadcaster? If you have any ideas or comments I would like to hear from you.

Well, that seems to be all for this month. Remember if you have any news or suggestions, please feel free to communicate them to the address at the head of this column. Until next time, the best of 73 and good DXing!

## WICEN

R. G. HENDERSON VK1RH,  
Federal WICEN Co-ordinator

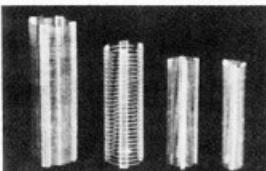
This month I wish to briefly outline a subject that up to now has had little attention devoted to it in this column — *First Aid*.

The St. John's Ambulance Brigade lists the following as topics for a general first aid course:

- Blocked airways.
- Resuscitation.
- External cardiac compression.
- Haemorrhage (bleeding).
- Recovery position.
- Epilepsy.
- Diabetes.
- Snake and spider bites.
- Degree of consciousness.
- Clinical and biological death.
- Emergency childbirth.
- Multiple casualties—treatment priorities.
- Transporting injuries.

WICEN members have several options open to them regarding first aid training, they may attend St. John's or State Ambulance services courses, or arrange to attend SES, VRA or other courses, or they can negotiate with qualified Instructors to conduct a course for them. It is useful also to get advice on the contents of a suitable first aid kit for mobile station carriage and use.

## AIR-WOUND INDUCTANCES



No. Dim. Turns per Inch Length B. & W. Price

No.	Dim.	Turns per Inch	Length	B. & W. Eq.	Price
1-08	1/2"	8	3"	No. 3002	\$1.50
1-16	1/2"	10	3"	No. 3003	\$1.50
2-16	4"	8	3"	No. 3006	\$1.90
2-16	4"	16	3"	No. 3007	\$1.90
3-08	8"	8	3"	No. 3010	\$2.15
3-08	8"	16	3"	No. 3011	\$2.15
4-08	8"	8	3"	No. 3014	\$2.40
4-16	1"	16	3"	No. 3015	\$2.40
5-08	1 1/2"	8	4"	No. 3018	\$2.65
5-16	1 1/2"	16	4"	No. 3019	\$2.65
8-10	2"	10	4"	No. 3907	\$3.85

### Special Antenna All-Band Tuner Inductance

(equivalent to B. & W. No. 3907-71)  
7" length, 2" diameter, 10 turns per inch,

\$6.65

References: ARRL Handbook, 1981; "QST", March 1959; "Amateur Radio", December 1959.

Take the hard work out of Coil Winding — use "WILLIS" AIR-WOUND INDUCTANCES

WILLIAM WILLIS & Co. Pty. Ltd.

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PHONE: 836 0707

## CLUB PROGRAMME ORGANISERS

DON'T FORGET THE WIA VIDEOTAPE LIBRARY IN PLANNING YOUR EVENT CALENDAR.

See catalogue on page 44.

# RAOTC

RADIO AMATEURS OLD TIMERS CLUB

## 1982 QSO PARTIES

The "get-together" QSO parties arranged last year in conjunction with the Old Timers' Club, New Zealand, got away to a rather slow start, but by the third one, on 14 MHz, support had built up to a reasonably solid level.

It has been agreed that two more will be held this year, with slight changes in the rules and a time limit of three hours.

## RULES

### Eligibility

The contest is open to members of RAOTC (Australia) and OTC (New Zealand).

Note: There are some members of the Australian Club in overseas countries, mainly USA, who took part in last year's QSO parties.

### Contest Exchange

Members will exchange:—

1. Their Club membership numbers, VKs prefixed by "A", ZLs prefixed by "Z".
  2. Year of first licence.
  3. Name.
  4. Age.
- E.g.: Nr. A256 1951 Bill 49.  
Nr. Z128 1923 Harry 78.

### Scoring

One completed contact with a member on CW or SSB, but not both, will score 5 points.

**Multiplier** — the total of VK, ZL and overseas call areas contacted.

### Final Score

Contact points x multiplier.

### Dates and Times

Contest 1 — 20 metres:

Monday, 8th March, 1982, 0200Z to 0500Z.

Please spread out around centre frequencies — CW 14050 kHz, SSB 14150 kHz.

Contest 2 — 40 metres:

Monday, 9th August, 1982, 0800Z to 1100Z.

Centre frequencies — CW 7015 kHz, SSB 7075 kHz.

A reminder will be given later in the year regarding the date of this contest.

### Entries

Claimed scores, showing mode (CW, SSB or CW/SSB), number of QSOs and multiplier, should be forwarded to John Tutton VK3ZC, 31 Denham Street, Hawthorn, Vic. 3122.

Lists will be exchanged between the VK and ZL Clubs for publication of results.

Keep these dates before you and please make an effort to participate.

All amateurs who have been licensed for a period of 25 years or more are eligible to join the Radio Amateur Old Timers' Club.

A self-addressed stamped envelope (9 x 4) to the Secretary, Harry Cliff VK3HC, PO Box 50, Point Lonsdale, Victoria 3225, will bring you a membership application form.

# INTRUDER WATCH

Bob McKernan VK4LG  
Federal IW Co-ordinator

December's Intruders of the Month Award was shared by two very troublesome stations which continue to attract the attention of Intruder Watch, UMS, reputed to be Russian Merchant Navy shore to ship, operates daily on 21032 kHz, and can often be heard on 14141 and 14171 kHz as well. UMS uses A1 CW and F1 RTTY, with a frequency shift of 250, 500 or 1000 Hz. CQ5 operates A1 CW on 21115 kHz at 0400, 0600, 0800 and 1000 GMT, Monday to Saturday.

YOU SHOULD COMPLAIN to your Division IW Co-ordinator, giving details of your observations on these intruders. As much as possible of the following information should be reported. Date, GMT, frequency, mode of transmission (if you're not sure, just describe the signal), strength, bearing, type of traffic, any call signs heard, and especially harmful interference details.

As these two intruders are outside novice segments, it will be difficult for novices to report harmful interference. Where this is possible, every effort should be made to describe interference. No government action is likely if multiple instances of harmful interference cannot be quoted.

Now for the difficult part. I request that as many stations as possible operate exactly on the CW frequency, or on one of the F1 frequencies of UMS, around 21032 kHz. You won't make many contacts, but the Russian Merchant Navy will be soon looking for another frequency, hopefully outside amateur bands. ZL1BAD and I have been trying to contact each other on this frequency for 1½ years. Much more effort by more amateurs is required. It is logical and necessary to operate on 21032 kHz for the following reasons:—

- (a) You have to be on the frequency to log the intruder anyway.
- (b) Other Australian and foreign amateurs will soon realise why you are on the frequency and similar action by others may result.
- (c) You will be discouraging Russian intruder activity on this frequency, and possibly discouraging further intrusions.
- (d) The harmful interference experienced from UMS will be an important part of your report.
- (e) If UMS interferences with your QSO with a USSR station, you will be justified in acquainting the station of the source of QRM.

## BUYING OR SELLING GEAR?

**HAMADS**  
MAKE IT HAPPEN FAST

# AR AWARDS

The Publication Committee has pleasure in advising the names of recipients of awards for 1981.

## HIGGINBOTHAM AWARD

Mr. DREW DIAMOND VK3XU, for articles over the period and general work for amateur radio (\$100).

## TECHNICAL AWARD

Shared between Mr. HANS RUCKERT VK2AOU ("A More Complete Antenna Test — Beliefs and Facts" — June AR) and Mr. BOB SLUTZKIN VK3SK ("A Review of Antenna Noise Bridges" — March, April and May ARs). (\$100).

## ASJA

(Al Shawsmith Journalistic Award)

Mr. CHRIS LONG ("Vale Gil Miles VK2KI ('Vale History') — April AR. (\$30, plus plaque)

# BOOK REVIEW

## INTO ELECTRONICS

Published by WIA (NSW) Education Service. This book contains 92 pages of text and updates the previous YRS publication "Elementary 1 Electronics Notes".

It is divided into 19 chapters starting from Basic Electric Circuits, which it fully covers, through to a discussion on test instruments, wave propagation, transistors and receivers.

The book assists the reader with many diagrams, and at the end of each chapter are revision questions.

Each chapter is basic and concise, and does not go into too much technical depth.

This book gives a newcomer a grasp of the fundamentals required for the further study of a novice and/or full amateur radio certificate.

As a test of its effectiveness, I allowed my 14-year-old 3rd form daughter Wendy to give me her impressions. She has had no previous direct involvement with electronics apart from her school studies. Wendy found it easy to read and understand, particularly the associated drawings, and stated that this has given her the information her teachers had difficulty in explaining, and would certainly assist prospective amateurs in their study.

It represents good value at \$3.00 (posted) and is available from the WIA (NSW) Education Service, 14 Atchison Street, Crows Nest, NSW 2065, or Magpubs.

Reviewed by VK3UV.

# AWARDS COLUMN



Bill Verrall VK5WV

7 Lilac Avenue, Flinders Park, SA 5025

The concluding part of my "think piece" on DXCC is this description of the UN-DU Award of the Philippines.

## THE UN-DU AWARD

The Philippine Amateur Radio Association hereby offers a permanent and continuing international award to be known as the "UN-DU Award of the Philippines" on the occasion of the 45th anniversary of its organization.

This award is to be given to any licensed amateur in any country who has obtained 100 or more confirmed QSL cards, for contacts with at least 100 member countries of the United Nations.

This award is given in commemoration of the formation of the United Nations in 1945, of which the Philippines is a charter member and an active supporter, having contributed many distinguished names to the service roster of the world organization. Among them are our current Secretary of Foreign Affairs, Carlos P. Romulo, who served as Philippine Ambassador to, and President of, the UN General Assembly; Hon. Rafael Salas, who has distinguished himself as the Executive Director of UNFPA; as well as many Filipinos who are now serving the United Nations in various capacities.

We, in the Philippines, believe that this award, aside from the international interest that it may focus on our own country, will foster international goodwill and understanding through person-to-person contacts, and further enhance the image of the United Nations as the hope for One World community of nations and peoples.

## COMPLEMENT TO THE DXCC AWARD

This award is also intended to complement the DXCC award and to correct the various deficiencies for which it has often been criticized:

1. The DXCC Award contains "grandfather clauses" that favour operators with years of experience, since deleted countries are still counted as far back as 20 years ago.

2. DXCC uses arbitrary definitions of countries based on past history, perhaps hundreds of years ago, such as Scotland, Wales, Northern Ireland.

3. DXCC uses arbitrary definitions of countries based on geography, for instance, Channel Islands which lie less than 250 miles from the English coast, while other countries must provide an island more than 250 miles from their coast to make a "new country".

4. DXCC recognition as a country, of uninhabited islands, reefs, etc., as well as former colonies reverting to the mother country (such as Goa in India) is a source of much dissension.

5. Further discrepancies show up. For instance, under DXCC rules, an island reef and/or sand bar above water level, less than 250 miles from the Philippines shoreline in the South China Sea, would be counted as a "country" if visited by any operating hams, except those from the Philippines, if it were closer to us than any other country, and if we claimed it but did not occupy it.

To correct these deficiencies, we propose for our countries list only countries who are regular members of the UN, the authorized UN agencies. Contacts with colonies will not be considered as contacts with the governing nation, nor will they be considered as contacts with a country.

The UN-DU Award, like the DXCC, is for 100 countries initially. However, due to geography and numbers concerned, it will be more difficult to get 100 UN-DU than 100 DXCC. However, completion of the UN Award (as regards nations which license hams) is much easier than DXCC, as the latter depends on rather chancy DXpeditions.

Actual completion of the entire UN countries listing of 149 countries is not possible at present due to non-licensing of hams by several UN nations.

## RULES FOR THE UN-DU AWARD

1. To qualify for this award, one must be a licensed radio amateur, in any country whether or not such country is a member of the United Nations.

2. He must acquire 100 or more QSL cards for contacts after the formation of the United Nations, October 24, 1945, with at least 100 UN member nations, which may include one from his own country, if a UN member.

3. He must mail the above QSL cards, along with a fee of US\$12.00, to the Philippine Amateur Radio Association (PARA) at the Philcomcom Building, Ortigas Avenue, Pasig, Metro Manila Philippines; he also must submit a photocopy of his valid amateur licence.

4. An initial application may be made for 100 countries. If additional countries are applied for, they shall be in group of 5 countries. No additional fee is charged for this.

5. Awards will be assigned a serial number according to the date of mailing. If this is not clear in the package, then the date stamped at the Philippine receiving post office will prevail.

6. No Philippine application will be acted upon until at least ten awards are made to amateurs of other countries.

7. All submitted cards will be returned after checking.

8. The UN-DU list of countries includes:

- (1) All countries who are regular members of the United Nations. To be valid, contacts with any country must be made on or after the date of its admission to the UN.

- (2) All UN agencies count as one country. Such include any UN station licensed to the UN or its agency by the host country (e.g. 4U1 ITU in Geneva), or any amateur station located in UN territory bearing a call sign not in the host country's sign block (e.g. 2U2 UN in New York), or any UN authorized amateur station in UN occupied territory (e.g. in Antarctica or in a country occupied by a UN peace keeping force).

- (3) If for any reason a country loses its UN membership, or any UN agency ceases operation, such country or agency shall have to be deleted from the UN-DU Award certificate effective on the date the membership is lost.

- (4) Contacts with colonies will not be considered as contacts with the governing nation, nor shall any colony qualify as a country under this Award.

9. The Awards may be granted for each of the single modes or mixed modes: SSB, CW, RTTY, SSTV, Mixed, or Satellite Relay (also mixed).

## DESCRIPTION

This Award is rather large, approximately 500 mm x 400 mm, so you have difficulty in finding a suitable frame. It is printed in black and gold on good quality parchment. The surround contains illustrations of the 150 flags of UN member nations on which PARA has individually cut and glued a multi-colour print of each flag, a most laborious and time consuming task, but the resulting appearance is outstanding. However, my copy has about 30 flags missing because PARA must have run out of stocks of some flags when my Award No. 51 was prepared in July 1981. If you are keen, it is possible to purchase a world map containing the correct size flags from a good map shop, so you could complete the job yourself. My Award also contains 5 gold stars, one for each multiple of five countries over the initial 100 countries. This Award is a worthwhile addition to the shack wall, but I do not have a suitable frame. Here is a suggestion. If at any time you have wrecked an old B and W TV set, the type that had the hardened glass protection screen in front of the picture tube, put this on top of your operating desk or table and put your award underneath. The piece of glass can be stuck down around the edges with good quality tape which only needs to be replaced about every 18 months. I have two such pieces of glass which is also a protection against spills of coffee, beer, etc., during your frantic DX and contesting, and also protects the table surface against scratches through continually up-ending the rig to tweak the last ounce of power out of the thing.

Good hunting.

# NOVICE NOTES



Edited by Ron Cook VK3AFW

Listening around the bands recently has convinced me that a number of operators need to polish up their procedures. The following hints have been found useful by amateurs around the world over many years.

Listen before calling. Ask whether the frequency is in use. The band conditions may prevent you hearing both sides of a QSO yet you may be the source of QRM.

Keep your calls brief. Speak clearly and slowly, don't gabble. Many overseas opera-

tors will not comprehend rapidly spoken English.

If using CW send at the speed you want the other station to use. Sending CQ at 25 w.p.m. when you can't cope with 10 w.p.m. is inviting trouble.

Use push-to-talk to enable rapid response to queries. Break for short queries.

Give honest reports. A 5 and 9 plus 20 report followed by a request to repeat your report and their name does nothing for your credibility.

Keep transmissions short. Many VHF repeaters have "time-out" systems. If there is a contest on, taking more than 30 seconds to exchange and acknowledge correct call signs and numbers is taking too long (on phone anyway). Slick operators can do this in 10 to 15 seconds. If there are four stations in a round table QSO and each talks for a reasonable three minutes then you can have five transmissions per hour. If you talk for four or five minutes you are probably a bore and certainly depriving the others of an opportunity to participate. Be concise and then you will be brief. Avoid saying the following as fillers:-

"Er, er, um, yeah", "Yeeeeeah", "Like that", "You know".

In everyday speech these and similar terms are common and probably offend very few. They are great time wasters and reduce your QSO rate when used on air. Crudities and obscenities are offensive to most people regardless of what your friends might think.

Be courteous and sensible when pile-ups for DX develop. Transmitting when the DX station is calling doesn't help anyone. Calling when someone else is calling will nearly always prevent the DX station copying anyone.

After calling CQ on CW if there is no reply on the frequency tune plus and minus a kilohertz or so. Some rigs have offsets and not everybody nets as accurately as you.

Do your equipment tests with a dummy load. Don't radiate long test transmissions, especially if you are checking out some instability.

Keep the mike gain wound back and use a minimum of speech clipping. Modern rigs have more than enough gain. Turning the gain up will give impressive final current meter readings but can cause the final to be driven too hard. This causes distortion and generates harmonics and in-band splatter.

Because your signal is appearing on frequencies other than those in the passband of the receiving station you are wasting energy and may not be as strong as you could be.

A clean signal is admired. A signal that occupies 50 kHz will attract undesirable attention.

This is not an exhaustive list but if you stick to it you will infrequently be the object of complaint. Happy operating.

73 de VK3AFW. ■

## INTERNATIONAL NEWS

### 10 MHz BAND

UK amateurs (Class A) are able to use the 10 MHz band (10100 to 10150 kHz) as a secondary service from 1/1/1982. The UK follows the IARU Region 1 band plan as using 10100 to 10140 kHz for CW only and 1040 to 10150 kHz for CW and RTTY.

The PNG Administration has allowed their amateurs to use this band on a secondary basis.

### OTHER BANDS OVERSEAS

From 1/1/1982 the special UK 70 MHz allocation has been reduced by 200 kHz at the top end and the UK 1.9 GHz allocation has been changed to 1240-1325 MHz with earth to space amateur satellite service availability from 1260 to 1270 MHz. UK amateurs have not been allocated the new 18 and 24 MHz bands.—Rad. Comm., December 1981.

### THAI AMATEURS

According to a report in "The Bangkok Post" of 3rd December Thai amateurs who pass their P. and T. exams will be licensed to operate "freely for the first time", including the 2m amateur band.

### VHF/UHF BAND PLANS IN JAPAN

JARL recently announced modifications to their band plans for the 6 and 2m bands, 70 cm and 23 cm bands. In regard to 6 metres, 50.010 MHz is reserved for the JARL beacon, 50.1 to 51.0 MHz is for CW, RTTY, AM, SSB and SSTV, whilst 50 to

50.01 is reserved for EME, meteor and auroral scatter. 51 to 52 is set aside primarily for FM less than 16 kHz bandwidth with AM, SSB, SSTV, RTTY and CW permitted as "secondary". Above 52.0 all modes are permitted except FM being "secondary" (for replying to calls from overseas stations on 52 MHz) up to 52.5 MHz. EME, etc., is set down for the 144.0 to 144.1 MHz, 431.9 to 432.24 MHz and 1295.9 to 1296.1 MHz segments.

### CANADIAN LICENCES — RECIPROCITY

The address for communications given as "Director-General, Telecommunication Regulatory Branch, DOC, 300 Slater Street, Ottawa, Canada K1AOC8", or apply in person to the nearest DOC Regional Office.

### BANGLADESH AMATEUR RADIO LEAGUE

The BARL has applied for membership of the IARU. The main objective in forming and registering the Society in 1979 was to negotiate for the revival of amateur radio in Bangladesh. Applications for amateur licences are still held pending by the Wireless Board.

### LIBERIAN MM STATIONS

According to the Liberian Radio Amateur Association, which maintains close liaison with their licensing authorities, a number of maritime mobile EL0 call signs are in use by pirates.

### AMATEUR POSTAGE STAMPS

An amateur radio stamp has been issued by the Government of Djibouti in the value of 250 Djibouti Fcs. ■

## 1982 CALL BOOKS NOW AVAILABLE

### NOW IN STOCK — U.S. AND FOREIGN CALL BOOKS

Hurry — as only a limited quantity available.

**U.S. CALL BOOK — \$20.00  
PLUS \$4 POST**

**FOREIGN CALL BOOK — \$19.00  
PLUS \$4 POST**

Also available —

**DX GUIDE — \$3.50  
PLUS \$2 POST**

**KIT OF MAPS — \$6.00  
PLUS \$2 POST**

## G.F.S. ELECTRONIC IMPORTS

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or P.O. Box 97, Mitcham 3132

Phone (03) 873 3939

# The WIA Videotape Library

John Ingham VK5KG  
Federal Videotape Co-ordinator

The titles in the WIA videotape collection have been ordered into three groups as follows:-

Group A: Due to copyright restrictions, these programmes are available ONLY on loan. Borrowers may NOT make copies from tapes on loan.

Group B: Copyright clearances enable the WIA to copy these programmes on to a blank cassette provided by the user.

Group C: These are televised technical lectures available as a copy on to a blank cassette provided by the user. (Because these are not "formally" produced programmes, the WIA may withdraw any title to make tapes available for future lectures.)

## AVAILABLE FORMATS

As of the date of this publication, the WIA Federal Videotape Service can provide programmes ONLY on the Umatic or Philips N1500 formats. VHS, Beta, etc., are regrettably NOT available.

NOTE: Many high schools, technical colleges, etc., may be willing to allow the use of their Umatic or Philips N1500 VCRs so that you might either copy WIA video programmes on to your own format (Group A programmes excluded) or replay directly to your club. However, you must STILL provide us with a blank Umatic or Philips N1500 videocassette to obtain a Group B or C programme.

## HOW TO ORDER WIA VIDEOCASSETTES

Group A: With your request include sufficient stamps to allow postage to you of the number of cassettes requested, plus additional stamps to the value of a suitable padded mail bag(s).

Also include the following declaration signed by a responsible officer of your club: "I hereby undertake to prevent the copying or transmission of (name of programme) whilst it is in my care, and further, to return the same promptly upon use."

Group B and C: With your request include blank cassette(s) of sufficient length and of either the Umatic or Philips N1500 formats. Also include sufficient stamps to cover the return postage to you. Your cassette will normally be re-addressed to you in the same wrapping you used. If you wish to use padded mail bags, here is a handy hint: Include with your blank cassette a stamped, self-addressed padded mail bag; your original padded mail bag will then be returned to you with your cassette for future re-use without having to re-address it!

## COST OF POSTING VIDEOCASSETTES

It is not possible to give a flat rate for Surface Postage to and from the WIA Videotape Co-ordinator because the rates vary according to the distance involved. However, present Airmail Postage guides show that there is a minimum charge of \$6 from anywhere in Australia for up to

2 kg worst case (Qld., WA, NT), i.e., up to 2 x 60 min. videocassettes. But at the rate that postal charges are inflating, that figure will not stay stable for long!

As a guide then for estimating postage a 60 min. Umatic videocassette weighs approximately 900 gm, including box, while a 30 min. one weighs 750 gm. Either will fit into a 26 x 36 cm padded mail bag.

## WHERE TO ORDER FROM

All requests for Group A, B and C programmes should be sent to:-

WIA Federal Videotape Co-ordinator  
John Ingham VK5KG,  
37 Second Avenue, Sefton Park,  
SA5083.

Please allow 2-3 weeks for your request to be processed.

## CATALOGUE OF TITLES

Group	Title	Approx. Duration	Colour or B. & W.	Availability
A	"G6CJ's Aerial Circus" (1 x 60 min. plus 1 x 30 min.)	90 min.	B. & W.	Loan
A	"7J1RL DXpedition"	60 min.	Colour	Loan
A	"Wireless Telegraphy" (circa 1910)	10 min.	B. & W.	Loan
B	"Official Opening of Burley-Griffen Building" (SA WIA HQ)	50 min.	Colour	Copy
B	"This is Amateur Radio" — ARRL (teenagers)	15 min.	Colour	Copy
B	"Moving Up To Amateur Radio" — ARRL (CBers)	15 min.	Colour	Copy
B	"This is Amateur Radio" — ARRL (obsolete)	30 min.	Colour	Copy
B	"The World of Amateur Radio" — ARRL (general)	30 min.	Colour	Copy
B	"This Week Has 7 Days Looks at Amat. Radio"	30 min.	Colour	Copy
B	"Amateur Radio — The National Resource of Every Nation" (general)	6 min.	Colour	Copy
B	"Low Definition Television" (the Baird Sys.)	30 min.	Colour	Copy
B	"The History of ATV in SA"	30 min.	Colour	Copy
B	"ATV in Australia, 1978" (made for British ATV Club)	30 min.	Colour	Copy
B	"ATV in United Kingdom, 1980"	30 min.	Colour	Copy
B	"ATV in Australia, 1980/81"	60 min.	Colour	Copy
B	"SSTV Pictures from Space" (from Voyager)	15 min.	Colour	Copy
C	Lecture — "Wire Antennas" (VK5RG)	40 min.	B. & W.	Copy
C	Lecture — "Loaded Wire Antennas" (VK5NN)	50 min.	Colour	Copy
C	Lecture — "RTTY" (VK5QX)	40 min.	B. & W.	Copy
C	Lecture — "Tracking Oscar" (VK5HI) (VK3ATY)	40 min.	B. & W.	Copy
C	Lecture — "The Signal to Noise Story"	45 min.	Colour	Copy
C	Lecture — "An ATV Hamshack uComputer" (VK3AHJ)	10 min.	Colour	Copy
C	Lecture — "The Apollo 13 Disaster" (VK5JM) (2 x 60 min. cassettes preferred)	90 min.	Colour	Copy
C	Lecture — "History of uProcessors" (VK5ZFQ)	60 min.	Colour	Copy
C	Lecture — "Understanding uProcessors" (VK5PE)	60 min.	Colour	Copy
C	Lecture — "Winning Foxhunts" (VK5TV)	45 min.	Colour	Copy
C	Lecture — "An Auxiliary Battery Charger" (VK5NX)	25 min.	Colour	Copy

# AROUND THE TRADE

## TELESCOPIC 5/8 WAVE ANTENNA NOW AVAILABLE FOR 2m HAND-HELDS

GFS Electronic Imports of Mitcham, Victoria, announced the availability recently of a telescopic 5/8 wave gain antenna designed for use on 2 metre hand-held transceivers. The antenna, known as the G-58, is manufactured by VoCom in the United States. They claim a gain of 5.6 dB over a 1/4 wave whip and nearly 10 dB over the common "rubber ducky" antenna.

The G-58 makes use of a 10 section telescopic whip which extends to 47 inches and telescopes to a convenient 8 inches for storage, etc. Below the telescopic section is a loading coil/spring followed by a BNC connector. The spring loading coil gives the G-58 good flexibility for the time when your hand-held may fall over or when the antenna is knocked against something.

Tuned for correct resonance by VoCom while mounted on to a hand-held, the G-58 has a VSWR better than 1.5:1 from 144 to 148 MHz, giving good operation over the entire band.

The new antenna is priced at \$34 plus \$2 post. For further details contact GFS Electronic Imports, 15 McKeon Road, Mitcham, Victoria 3132. Phone: (03) 873 3939. Telex: 38053. ■

## VICOM CELEBRATE 7th BIRTHDAY

Vicom International, Australia's leading supplier of amateur radio gear, has just celebrated its 7th birthday.

Founded by three of Australia's best known hams — Russell Kelly, Peter Williams and Michael Goode in 1974 — the company has grown dramatically in the past three years.

Russell Kelly VKANT and Peter Williams VK3IZ, are both past Presidents of the Victorian Division of the WIA, and Michael Goode VK3BDL, a former Treasurer, started the company to give amateurs better service and better equipment.

The company now has a staff of 20 and offices in every State, and is sole authorised distributor of leading brands Icom, Daiwa and Regency.

To mark its move to new premises in City Road, South Melbourne, Vicom is also embarking on a major advertising campaign to remind amateurs that Vicom is still the most professional in amateur radio, with a large number of its staff all still active in the amateur radio ranks.

The Vicom directors say that because of its success in the amateur radio market the company has had to grow dramatically to keep up with demand. However, this has not meant any slackening in the personal service the company offers.

"We have built the company on expert service and we intend to keep it that way," Mr. Kelly said.

"Our real strength has been in knowing not only what's happening here in Aus-

tralia, but knowing what's happening overseas in new developments as they happen."

Vicom believes that this has extended to the after-sales service area where the Company believes its back-up is the best in Australia.

Vicom has decided to launch its campaign with a series of advertisements introducing the members of their team who have helped make the company such a success. ■

## TONO RELEASES NEW COMMUNICATIONS COMPUTER

Tono have released the new Theta-9000E which is an upgraded version of the popular Theta-7000E RTTY Communications Terminal.

The most attractive feature of the new 9000E is that it is a word processor is now built in to the unit.

Another feature is the graphic function to enable easy send/receive graphic patterns to be drawn by an accessory light pen on an optional video terminal.

The memory capacity has also been increased with the display now holding 16,416 characters with a battery backed up memory of 256 characters by 7 channels.

The distributors of Tono in Australia and New Zealand, Vicom International Pty. Ltd., claim that the Tono 9000E has many hundreds of features.

A brochure containing details of many of the features is available by writing to Vicom International Pty. Ltd., P.O. Box 366, South Melbourne, Vic., 3205. Vicom have indicated that their first supplies are expected around March 1982 and the retail price will be around \$1,259. An optional video monitor Model CRT1200G is available at \$329. ■

## METEOR BURST COMMUNICATIONS

*A highly reliable method of data telecommunications using reflections from ionized trails, or re-radiation of particles within the trail, caused by meteors entering the earth's atmosphere.*

Billions of ionized meteor trails are produced daily on a global basis at heights ranging from 50 to 75 miles above the earth's surface. As amateurs know, these trails are very effective reflectors of radio communications. Although the ionized trails diffuse rapidly and usually disappear within a few seconds, the sheer world-wide volume of meteor trails permit an average communications data rate equivalent to about 100 words per minute, 24 hours per day. Maximum communications distance between any two stations is about 1,200; however, greater distances are possible by relaying. Only a single frequency, or pair of full duplex frequencies, normally between 40-50 MHz, is required for 24 hours point-to-point service, regardless of path length. Antennas can be dipoles but small 5-element yagis are preferable. Maximum power required is no more than 1,000 watts with many applications at 300 watts or less.

Consequently, a Meteor Burst Communications system is comparatively simple, uncomplicated, without moving parts, and lends itself to great mobility and transportability with minimal installation time required.

Because the meteor trail is bi-directional, it can be used for full duplex as well as half duplex operation. The station originating the communications enters the message in the Transmit Storage while the transmitter "probes" for a usable meteor trail. Within seconds the recipient station receives the probe, transmits receipt back from the same trail, and the stored information is "burst" over the link at a data transmission rate up to 9,600 bits per second. When the trail diminishes to an unusable level, as evidenced by fading of the return probe received at the originating station, the modulation is discontinued. Seconds later, when a new meteor trail path is established between the two stations, the process is automatically repeated until the entire message has been transmitted. For multiple station networks, each station can be configured as a functional station as well as a relay station, providing alternate transmission paths as well as extended ranges.

The US Government is a leader in the operational use of Meteor Burst Communications. The Alaska Meteor Burst Communications System (AMBCS) is shared by five US Government Agencies (Army Corps of Engineers, Bureau of Land Management, Department of Agriculture, Geological Service, and the National Weather Service) with data sites throughout Alaska, and a master or interrogating station in Anchorage, Alaska. The US Department of Agriculture SNOTEL system transmits snow pack data from 475 unmanned sites spread throughout 11 western states using solar panels for input power. The master of interrogating stations are at Boise, Idaho and Ogden, Utah.

Unauthorised interception of Meteor Burst Communications is minimised when directional antennas are used because of the small "footprint" of the received signal, approximately 5 miles by 30 miles, and the low probability of coincident meteor trails existing at the same "burst" incidence between the desired and undesired stations. The signal format also lends itself to easy encryption if additional security is desired. A Meteor Burst Communications system has inherent anti-jam protection for the same reasons.

Vicom can provide a total Meteor Burst Communications system whether a straightforward RTTY net or a complex data communications system for manned or unmanned sensors. Data from sensors (temperature, pressure, rate of flow, etc.) collected manually, by wire lines, or by RF lines of sight transmission can be centrally collected and stored, and then sent automatically or on command to final processing sites over a Meteor Burst Communications system. The Meteor Burst product line includes all elements and interface equipment for whatever the communications requirement.

A full line of portable support equipment is available for local data collection or on-the-air testing of transmitter performance, receiver performance or terminal performance with local or manual data 1/0 capability.

In all cases the equipment has been designed for minimal power drain for long battery life or solar cell operation. A universal battery charger provides battery serving, and test support, where solar capability is inadequate.

Equipment can be configured for airborne operation for data collection and storage for Meteor Burst Communications in-flight operation.

Vicom International Pty. Ltd.'s professional division represents a USA Company, Scientific Radio Systems, who provides this equipment.

#### FAST TUNE-UP ANTENNA TUNERS RELEASED

Two automatic antenna systems with a three-second tune-up time have just been released in Australia by distributors, Vicom International.

The result of extensive engineering research by maker Icom, the new equipment is the first of its kind anywhere in the world.

Icom has designed the equipment to match existing Icom stations. However, the manufacturer also says it can be matched to other brands.

Two models are available — the ICAT 100 and the ICAT 500, with continuous power of 100 watts and 500 watts respectively. With newly developed circuitry which detects the resistance and reactance of the load, the antenna tuners are able to achieve remarkably quick tune-up time. The tuner controls two motors which adjust the two major variable capacitors.

When used with the Icom station, band changing can be achieved automatically by the band switch on either the IC 730 or IC 720A transceivers. In addition, the ICAT 500 unit can be used in conjunction with the new Icom linear amplifier, the IC 2KL.

The antenna tuners also have a presetting capability so that the matching circuit can be used separately for each band which enables quick frequency changes with trouble-free operation.

In addition, the antenna tuners have four coaxial sockets for antennas and are able to select suitable antenna for each band automatically. When the power for the antenna tuner is turned off, the tuner can be used as an automatic antenna selector through these antenna ports. The power source is either 13.8 v DC or 230 volts AC, and naturally the timer covers all the current amateur bands and the new WARC frequencies.

The automatic antenna tuners have 35 transistors, 10 ICs and 54 diodes and come in two models of either 1 kW (PEP) or 200 kW (PEP). Automatic tune-up time is within 3 seconds with a matching precision of VSWR 1 : 1.2.

Vicom International and their authorised dealers throughout Australia now have stocks available.



The IC-AT100 coupled with the IC-720A and the IC-PS15.

## CONTENTS

Reg Dwyer VK1BR  
PO Box 236, Jamison 2614

#### CONTEST CALENDAR

##### February

- 6/7 John Moyle Field Day AR 12/81  
13/14 Dutch PACC Contest  
26/28 CQ WW 160m Phone  
27/28 French Phone AR 1/82  
27/28 RSGB 7 MHz CW

##### March

- 13/14 QCWA Phone QSO Party  
27/28 CQ WW WPX SSB

#### EXCHANGES AND RULES

##### RSGB 7 MHz CONTEST

Phone, February 6-7; CW, 27-28. Start 1200 Saturday, end 0900 Sunday. Only single operator stations will be recognized.

##### Bands

- 7.04-7.10 Phone, 7.00-7.04 CW.

##### Exchange

RST plus cypher from 001.

##### Scores

15 points for stations outside Europe in contact with British Isles stations.

##### Multiplier

One for each different British Isle prefix, a total of 42. No credit for GB prefix.

##### Total Score

Total QSO points x multipliers.

##### Awards

Certificate for first, second and third place. Scorers in Europe, British Isles and non-Europe.

##### SWL Section

Scoring is the same as above. Overseas stations log only British Isle stations and their QSO number. Not more than 20 QSOs by the same station may be logged. Unmarked duplicate contacts will be penalised at ten times the claimed value, more than five unmarked duplicates will disqualify the log.

**Log Entries are to be received by April 3 for Phone, April 24 for CW.**

##### Send to

RSGB HF Contest Committee,  
PO Box 73, Lichfield,  
Staffs, WS13 6UJ, England.

##### WE GOOFED

You probably noticed in last month's AR that logs for the John Moyle Contest were to be sent to a PO Box in Orange.

This is incorrect, all logs should be sent to FCM, PO Box 236, Jamison, ACT 2614.

Sorry Wally.

## ALARA

AUSTRALIAN LADIES' AMATEUR RADIO ASSOCIATION

The members of ALARA would like to thank all who participated in their contest on 14th November. It was voted most successful, very friendly and informal by those who have already sent logs in to me. Remember, to be eligible for the contest logs must reach me by 14th February. We had a few teething problems but these will be overcome before our next contest. Please note the date — Saturday, November 13th, 1982. Details later.

Quite a few participants have indicated they will be applying to Mavis VK3KS for ALARA Awards as a bonus from the contest.

New call signs: Congratulations to Margaret VK2AHD (ex VK2KES), Vicki VK2EVM (ex VK2PFR), Irma VK3BBJ (ex VK3VCF) and Pat VK3NEG (Pat is the seventh YL in the Echuca area to obtain a call sign).

Congratulations to everyone who has passed exams recently and good luck to all who are sitting for exams this month: we look forward to hearing you on air soon.

If you are interested in joining ALARA please send for our new "Information Sheet" to Valda VK3DVT, C/- Brighton PO, Church Street, Brighton 3186. This gives details of ALARA activities, aims, fees, etc. Our main aim is to encourage and help YL involvement in our chosen hobby. Until the advent of the Novice licence the YL numbers were very small, but now our numbers are increasing rapidly.

ALARA has over 100 members and not all licensed YLs are aware of or are members of ALARA; one of our members, Austine VK3YL, has been licensed over 50 years; Mavis VK3KS over 40; others of us only months but everyone is welcome.

I am hoping to meet some of you at the Midland Zone Convention near Bendigo on 21st February: please make yourself known to me.

ALARA's next meeting on air will be Monday, 15th February. Please join in.

Remember, your subscription is now due. If you want to receive your newsletter, send off the money now. With postal costs, etc., as they are, we can only send to financial members.

Please send me any news of new call signs, etc., for inclusion in this column, so we can share in your achievement.

73/33 to all, Margaret VK3DML.

# LETTERS TO THE EDITOR

1-208 Hotakubo, Kumamoto City,  
Kumamoto Prefecture, 862 Japan  
8th November, 1981

Mr. Bruce Bathols VK3UV  
Editor "AR" Magazine, WIA  
Dear Mr. Bruce Bathols,

The other day, I visited your country to participate in the 11th Pan Pacific Congress of Real Estate Appraisers, Valuers and Counsellors.

I'm very happy to have had a chance to visit the office of WIA and observe your meeting. Thank you for presenting me with a WIA badge, two Call Books and a recent issue of Amateur Radio.

I hope to meet again on the air. I operate every Monday at 12.00-13.00 GMT (21.00-22.00 JST) on 21,250 kHz  $\pm 5$  kHz.

Thank you for doing me such a great favour.

Very sincerely yours,

Yoshio Tanaka JA6VVS

34 Toolangi Road, Alphington 3078

The Editor,  
Dear Sir,

I read with interest the comments of John VK3ACA on the transformer used in antenna noise bridges and shown in the diagrams in the March issue of AR. As far as the comments and diagrams go I would agree that they are valid, but I would suggest that anyone who uses the normal type of transformer in such equipment is asking for trouble.

What is not made clear by anyone, including the writer of the original Ham Radio article, is the fact that transformers and transmission line transformers, sometimes loosely called baluns, have nothing in common except the name. This is not the place to go into a lengthy discussion on the differences but here are a few basic ones. The core has nothing to do with the high frequency response, what it does is to extend the LOW FREQUENCY response. The number of turns have nothing to do with the impedance any more than the impedance of coaxial cable is changed by winding it into a coil. In any normally wound transmission line transformer the "inter winding capacity" simply does not exist.

The article in March AR refers to a bandwidth of 10 to 1. Way back in 1959 transmission line transformers were being made which were flat within 3 dB from 100 kHz to 900 MHz. Not 10 to 1, but 9000 to 1! Finally, if you study circuits involving genuine transmission line transformers you will occasionally come across diagrams of a "transformer" with BOTH ends of "secondary" grounded. Whoever heard of using a transformer with the secondary shorted?

I should add that I have seen at least four other articles — in commercial and amateur magazines and books of world repute — which show the same confusion. It seems most unfortunate that the same symbol is used for two totally different things, but we seem to be stuck with it.

For those who wish to know what a transmission line transformer really is, I suggest reading the original paper by C. L. Rutherford, Proc. IRE, August 1959. Also a very simplified article by myself in the American magazine "Popular Electronics", April 1979.

Roy Hartkopf VK3AOH

9 Dorothy Street, Croydon 3136

The Editor,  
Dear Sir,

I have recently received my Worked All Korea Award, which I am quite happy about as it is my first DX award, but when I opened the envelope I find I have also got at no extra charge a chain letter.

Although I had never seen a chain letter I had heard about them and I thought they had died out years ago. This particular letter originated from the USA and as usual suggests that you send it on but only to amateurs.

I don't know if the originators feel that amateurs have lower intelligence or what, but looking at the previous address it has been halfway around the world. Well it has stopped with me and I enclose the letter for your enlightenment:

I would be interested to know if this is the first copy to grace our shores.

Hopefully this may be of some interest to you.

73. Anthony K. Clark VK3VKK.

(This is a recurring evil unfortunately—the waste, paper basket is the best receptacle for this kind of letter.—Ed.)

2 Brenda Street, Nunawading 3131  
5/11/81

The Editor,

Dear Sir,

I write in protest regarding the developing habit of some operators in using garbled versions of the "Q" code on phone and, in particular, two metres FM.

The "Q" code is an internationally recognised code with standard meanings, designed to ensure efficient and accurate communications on CW, but is generally quite unnecessary when using phone.

All amateurs are required to pass an examination in regulations, and several questions on this paper are devoted to ascertaining whether the aspiring ham knows this code. I wonder if some operators would gain a pass in regulations if asked to retake the examination?

Below are listed several of the more commonly used expressions. The translations are mine — what are yours?

"I have to go now, so will go QRX" (I have to go now, so will go, I will call you later).

"I am at home home QTH" (I am at my home, my location is ...).

"I will go QRT" (I will go, stop sending).

And the most intriguing one of them all — "I am in my mobile OTHR" (I am in my mobile, I am correct in the current call book).

The mind boggles!

I suppose that it can be summed up in the words of a great Australian patriot — "So it has come to this, such is life".

Well I must go QRX and QSY to my mobile OTHR and head for the work QTH or the boss will give me RT.

73. John O'Rorke VK3KS.

Box 105, Yarra Glen 3775  
2nd December, 1981

The Editor,

Dear Sir,

This is a request for some space in your magazine, please, to publicise the action being taken to enlarge and improve the Royal Australian Corps of Signals Museum and Library, which are located at the Watsonia Barracks, Melbourne.

At present a Royal Australian Signals Museum and Historic Society is being organised and it will co-operate with the Army to achieve the stated aims.

On present indications the draft constitution for the Society and legal formalities should be completed early in 1982, when conditions for membership will be published.

Unfortunately there are many items of signal equipment used by the Army during World Wars I and 2, and for training purposes prior to 1947, which the Museum does not contain. Most signals equipment of that era appears to have been sold through disposal stores. Consequently private collectors or the amateur radio fraternity are probably the only persons from whom this equipment might now be obtained. So if any reader would be willing to lend, donate or consider making a bequest of any line, radio or visual signalling instruments or test equipment, the Interim Museum Committee would be very pleased to hear about it. Applications should be addressed to R.A. Sigs. Museum, C/T School of Signals, Watsonia Barracks, Macleod, Vic. 3085, or the Museum Supervising Officer phoned on (03) 450 7469 please.

The Library's collection of Signal Training Manuals, the first of which were published about 1905, is also incomplete and any such books or

pamphlets which could be loaned or donated would be greatly appreciated.

The Library does have a fairly comprehensive collection of circuit diagrams for military radio equipment and a photocopy of a circuit can be produced for a small fee. Requests should be directed to the address shown above.

The range of signalling equipment manufactured and used "on active service" prior to 1945 is quite amazing. Perhaps the most humble item is the earth pin. It suffered many indignities during efforts to dampen its surroundings. Among items at the other end of the scale is the "Portable Transmitting and Receiving Equipment, Type 3, Mk. II", manufactured during WW2 mainly for use in occupied Europe by resistance groups and the James Bonds of that era. It is a fine example of the "state of the art" of valve radio equipment at that time. It could function on an AC from 90 to 250 volts (40 to 60 Hz) or a 6 volt battery. The options included charging batteries, included generators powered by hand, pedal and steam. There was also a thermocouple charger consisting of 350 junctions of constantan and chromel built into a fire clay brazier which, when heated in a gas or oil fire, would charge the battery at about 1 amp. Although the Type 3 and some of the charging options were used by Australian troops, and after the war this small rig gave sterling service in many ham shacks, none of these items is currently in the Museum.

Of course, many of the exhibits are of much more modern origin, and in the future as signalling equipment becomes redundant, suitable examples will be added to the Museum's collection.

Finally, the Museum is open to visitors on request. Special arrangements can be made for visits by clubs.

Yours faithfully,

Jim Payne VK3AZT.

294 Middleton Road, Albany, WA 6330  
November 17th, 1981

The Editor,

Dear Sir,

"JOURNALIZE"

I ask the Wireless Institute of Australia and its volunteer code practice operators to cease the use of the word "journalize" to indicate guessing or anticipating.

First, it's wrong in grammar — no dictionary I have found gives any other definition of the word than "to enter as in a journal (diary)" or "to make an entry in book-keeping".

Second, it seems (on inquiry) to reflect on the integrity of professional journalists, the implication being, it appears, that journalists "make it up as they go along".

I know of loco drivers and truck drivers who go on shift with more than a fair share of alcohol in their blood and get away with it. I know of other tradesmen who do the wrong thing occasionally; but I do not label all loco drivers, or truckies, or carpenters, or any other body of workers as irresponsible or drunk or liars.

One operator I tackled on this said he remembered the use of the word when he was learning code in the RAAF during the war; this may or may not be the origin of the usage but what matters to me is that it is uncalled for, unjust and a stain on the good work of the Institute and all those willing volunteers who spend their spare time teaching beginners the code. Please, gentlemen, say "guessing" or "anticipating" — perfectly good English words which say exactly what you mean and don't malign someone else's profession.

Yours faithfully,

Harry Atkinson VK5WZ.

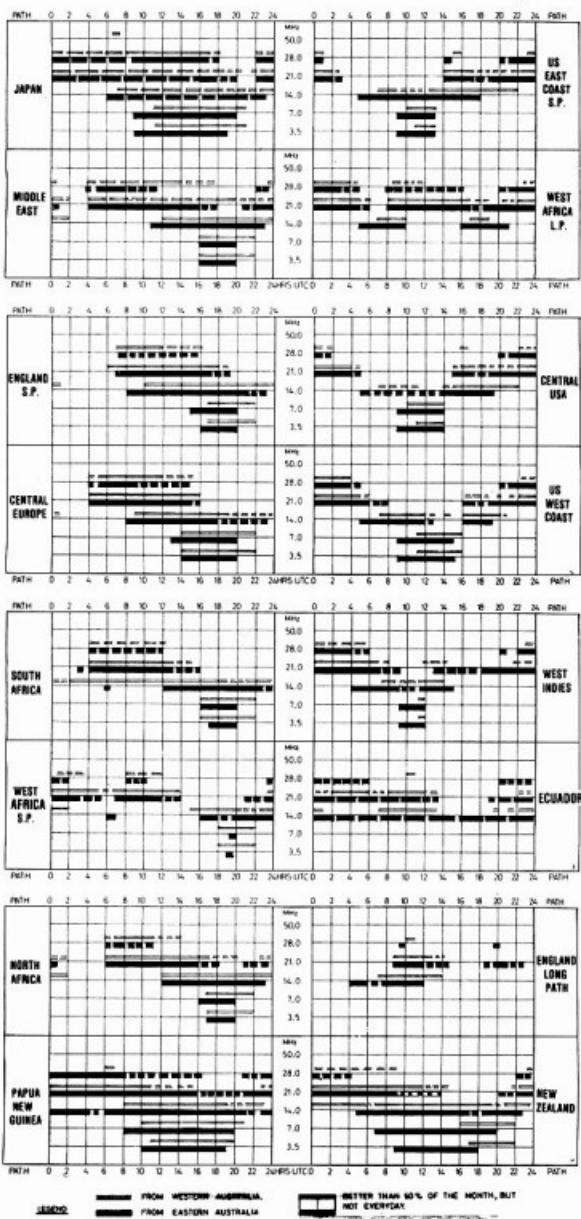
(Retired member of the Australian Journalists' Association and a ham since 1937.)

## QSP

### LICENCE DELAYS

According to an FCC report the average routine processing time for an amateur radio licence in July 1981 was 51 days—QST October 1981.

Len Poynter VK3BYE



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YOU'RE  
NOT  
BUYING  
AMATEUR  
RADIO  
ACTION



(IT'S AUSTRALIA'S BEST  
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# OBITUARIES

## MIKE CLAUGHTON

VK2DKX  
Michael (Mike) Claughton VK2DKX, a well respected member of the Coffs Harbour and District ARC, passed on at the early age of 48 years on 13th June, 1981.

Mike was schooled at Newington College, matriculated and entered the RAAF at the age of 18. He served at Richmond (NSW) and Ballarat (Vic.), where he trained as a Signaller, then to Malaya (1957-58) and to Townsville as an Air Electronics Officer. In 1968, as Squadron Leader, Mike was in command of the Victorian Air Cadet Squadron and finally, before retiring in 1979, he was OIC Cadets at the Engineering Cadet Squadron, Camberwell (Vic.).

With this background Mike had little trouble in pursuing amateur radio as a hobby and obtained his Novice licence and his AOCOP early in 1980. He was an experimenter in the true sense of the word and his call sign was a familiar one on the bands until just a few days before his untimely passing.

Mike will be sadly missed by his family, his friends, members of CHADARC, the local community and a wide circle of amateurs.

Inserted by Rick Fletcher VK2BKV on behalf of the CHADARC. ■

## TED CHARLES

## VK5YQ

Ted passed away peacefully at his home on Monday, 2nd November.

Ted held his amateur licence since 1935 and was able to remain on the air during WWII as he served as a Signals Officer in Australia, the Middle East, New Guinea, India and, after the war, in Malaya, where he operated as VS2BF during 1946. Returning to Australia he worked with the ABC as a radio technician before becoming involved with Anglo-Australian weapons projects at Salisbury and Woomera.

In 1952 he put his home brew equipment to one side to concentrate on family and home building. It was his children's interest in CB (??) that decided him to become active again in 1977, and his enthusiasm was so infectious that XYL Joy (VK5VJ), son Kim (VK5SKIM), daughter Joyanne (VK5SKJH) and her husband Graeme (VK5ZGE) all gained their call signs since.

Ever cheerful, Ted will be sadly missed by all who knew him on and off the air. To Joy, his son and four daughters, deepest sympathy from all ham friends.

Rufus Salaman VK5YO. ■

## RUSSELL BRADSHAW

## VK3SX

Russell Bradshaw VK3SX passed away at St. Andrew's Hospital, East Melbourne, on Thursday, 10th December, 1981, following two years of declining health. He was 79 years old and would have celebrated his 80th birthday on December 26th.

Born in Kew (Melbourne) in 1902, Russell was destined to enter the family business of soft furnishing wholesalers (Bradshaw & Allan) at the age of 16 years and remain with the Company all his life until his retirement in the early 1970s when the business was closed down. His primary education was at a school in Kew and his secondary education at Scotch College. Russell took a great interest in everything he undertook and applied himself with great zeal and tenacity of purpose. It was not unexpected, therefore, when he commenced learning about amateur radio at the age of 52 that he was successful in obtaining his AOCOP.

During the following years of ardent activity on the amateur bands Russell earned the WBE (Worked British Empire Award), the WAC (Worked All Continents Award by the IARU), the WAC/YL (Worked All Continents

# SILENT KEYS

It is with deep regret that we record the passing of —

Mr. B. T. KELLY	VK4VJ
Mr. E. ROBSON	5Z4ERR
Mr. A. W. TAYLOR	VKSAT
Mr. W. A. JONES	VKSZWJ
Mr. M. CHAFER	VK3MH
Mr. E. A. CHARLES	VKS7Q
Mr. J. A. SCRIVEN	L50711
Mr. M. VAN DYK	VK4NGW
Mr. R. TURNER	VKSART
Mr. L. R. B. BRADSHAW	VK3SX
Mr. K. SMITH	VK6KV
Mr. S. K. HOWARD	VK4BB
Mr. M. B. HARRIS	VK6H
Mr. R. P. MONK	L20082
Mr. R. C. PAGE	VK2KCF
Mr. M. D. S. CLAUGHTON	VK2DKX
Mr. J. A. BATES	VK2DZB
Mr. H. D. WARD	VK3HD

Award from the Young Ladies' Radio League), the WAZ (Worked 40 Zones on the official CQ Magazine DX Zone Map), the WAS (Worked All States of the USA Award), and the Cool Bicentenary Award issued by the WIA for working 100 Australian amateur stations during 1970. No mean effort for a man who started so late in the field of amateur radio. In addition to these he also earned an ARRL "Certificate of Performance" in the Phone Section of the 27th ARRL DX Competition (1961), and the Australian DX Century Club Award for working amateur stations in 100 countries.

He was a member of the Victorian Division of the Wireless Institute of Australia and served on the Council of the Division from December 1951 to May 1953 and for a short term in the latter year as Federal Councillor. He served on the Disposals Committee of the WIA from April 1955 to late in 1957, during which time he made a substantial area of his business warehouse available to the Institute at no cost for the storage of the many tonnes of disposals equipment then being handled by the Division.

He achieved 25 years of being licensed in the amateur service and became eligible for membership in the Radio Amateurs Old Timers' Club (RAOTC), of which he was member No. 185.

A gentle man by nature "Russ", as he was affectionately known as by most of his friends, will be sadly missed on the airwaves. Sympathy is extended to his wife, Olga, and daughters Jane and Judith.

G. Maxwell Hull VK3ZS. ■

## MART CHAFFER

## VK3MH

A FINAL FINAL WITH OUR OLE PAL  
"THREE MOTHER HUBBARD"

Mart Chaffer VK3MH had been very sick man since someone in a motel let down his tyres supposedly because Mart could have been causing TVI.

He was on his way to his beloved Palm Beach in VK4 to escape the winter cold of Doncaster. This was a few years ago. He suffered a stroke almost immediately after this incident.

The following year he no longer felt up to driving all the way up any more, so he and Ev put their brand new car on the train.

A water tower collapsed and fell on the train wiping out Mart's car along with four others! The railways admitted no liability. Fortunately the rig which was in the car escaped harm.

Marty's stroke did neither dim that fine business CW list nor that rich deep voice which always came through loud and clear.

He was, however, no longer able to write, so committed all QSOs to memory and

# OBITUARIES

rarely overlooked a comment even when working in a net. Whenever that did happen, he would make it good next time around.

Mart was an instructor at the Marconi School of Wireless back in those days when ships were still using spark transmitters. This wasn't really all that long after Marconi invented wireless.

Mart was born in 1905 and had been on air since 1921. He was a radio engineer with commercial stations in VK3 and VK6. In fact he built them.

In 1924 he operated experimental station 3XF. (There was then no VK prefix.)

Marty was awarded a prize that year at an exhibition in the Melbourne Town Hall for his work on the 200 metre band. (Broadcast radio) In those days the Amateur Radio Service, which was the forerunner of commercial radio — let it never be forgotten — transmitted on the broadcast band late at night and on Sunday mornings when the commercial stations were closed down. So Marty was a broadcast announcer after all.

He was then in his teens and using aerials with plenty of wire. The term "antennas" had not been invented in those days. Mart believed that the more wire you got up in the air, the better. Marconi would have agreed! It still holds today if you can do it.

No station in the Amateur Service has ever offered more to those coming up.

Marty was a member of the Light Car Club in earlier years and knew as much about cars as about wireless. He was no mean tennis player either in his youth. His first love, of course, was his family. His lovely wife Ev and kids Marcie and Ken will carry on his famous image and Ken will perpetuate that well known call sign VK3MH — Mother Hubbard.

Marty was 76 when his key became silent (November 6th, 1981). Let's say "73 OM, 78 and 88 too" and hope those "Views" you always spoke of here are just as good up there!

## CUL MALE!

VK3MH of VK3CDC, 3FC, 3AM, 3OM, 3TC, 3VLA, 3UE, net, 5DW, 5DS, SRM, SAI, 2BC, 2MH, 2BEN, 2NZ, 3TD, 6ZD, L3-0042 (Eric), 3BYK (Barbara), W8EGB. ■

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